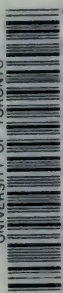


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EDITED BY J. H. MUIRHEAD, M.A.

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THE LIBRARY OF PHILOSOPHY is in the first instance a contribution to the History of Thought. While much has been done in England in tracing the course of evolution in nature, history, religion, and morality, comparatively little has been done in tracing the development of Thought upon these and kindred subjects, and yet "the evolution of opinion is part of the whole evolution".

This Library will deal mainly with Modern Philosophy, partly because Ancient Philosophy has already had a fair share of attention in this country through the labours of Grote, Ferrier, and others, and more recently through translations from Zeller; partly because the Library does not profess to give a complete history of thought.

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J. H. MUIRHEAD,
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ANALYTIC PSYCHOLOGY

BY

G. F. STOUT

FELLOW OF ST. JOHN'S COLLEGE, CAMBRIDGE
UNIVERSITY LECTURER IN THE MORAL SCIENCES

IN TWO VOLUMES

VOL. I.



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PREFACE.

THE time is rapidly approaching when no one will think of writing a book on Psychology in general, any more than of writing a book on Mathematics in general. The subject may be approached from the point of view of Physiology, of Mental Pathology, of Ethnology, and of Psycho-physical Experiment. Each of these methods has its own data, and its own distinct and independent ways of collecting and estimating evidence. By the side of these special lines of investigation, the time-honoured procedure of such men as Hobbes, Spinoza, Herbart, Locke, Berkeley, Hume, and Bain, still holds its own, and has its distinctive value. Indeed, its value is immensely enhanced by the fact that it is not now the whole of Psychology, but only a fragment of it. It may now be fruitful, not only within its own limits, as it has been in the past, but also as a help to inquirers in other lines. This remains true and important, even though we suppose its helpfulness to lie in mere suggestiveness, though this view, in my opinion, involves a serious under-estimate of its significance. I should say that its utility to other branches of psychological investigation is comparable to the guidance which an inland explorer of a large island may receive from a chart of the coast. On the other hand, to be of any value at all, it must stand on its own basis, and use the evidence appropriate to it; though where it is in doubt and difficulty, it will look for verification or refutation to the independent results of other methods.

The present work, in the main, follows the lines of the traditional English method. Its aim is to bring systematic

order into the crowd of facts concerning our mental life revealed by analysis of ordinary experience. Psychology is the most empirical of the sciences ; and of all the branches of Psychology what is commonly though inaccurately called the introspective is most immersed in matter-of-fact. Its function is to describe, analyse, and arrange. In this respect it is contrasted with a line of psychological inquiry which we have not yet referred to. What is called the Genetic or Synthetic Method, instead of attempting merely to ascertain and define the processes of the developed consciousness as we now find them, proposes to itself the task of tracing the evolution of mind from its lowest to its highest planes.

When I first planned the present work, it was my intention to follow the genetic order of treatment. But I found myself baffled in the attempt to do this without a preparatory analysis of the developed consciousness. Our knowledge of mental processes, as we can observe and infer them in our own ordinary experience, is essential as a clue to the nature of mental process at lower levels. I therefore found myself driven to pave the way for genetic treatment by a previous analytic investigation ; and the result was the present work. It must therefore be regarded, even in respect to my own plan of procedure, as a fragment of a larger whole. This will explain certain omissions which might otherwise appear strange. I have passed by whatever appeared capable of more efficient treatment from a genetic point of view. Thus, I have reserved the psychological investigation of Space and Time, the stages in the development of Self-Consciousness and of Will, and similar questions. I may say that my strongest psychological interest lies in certain genetic questions, and especially in those on which ethnographic evidence can be brought to bear.

My first acknowledgment of indebtedness is to Dr. James Ward. Whatever there may be of value in my work is ultimately due to his teaching. The effect of this influence is quite as real where I disagree from him as where I agree. Bain, Sully, and James have always been present to my mind in writing, and I feel deeply indebted to all of them. In general, I may say that where I criticise an author it is evidence that I think very highly of his work. Professor Bain's two great books appear ever more valuable and suggestive the more they are studied. I believe that I have been much influenced by my earlier study of Herbart, and of his disciple Steinthal. I have also found Mr. F. H. Bradley's work, especially as contained in his *Principles of Logic*, extremely suggestive. Among older writers, I feel that I owe most to Spinoza and to the English line of Empirical Psychology, especially to Hobbes and Hume. Professor Mackenzie kindly read through my proofs, and made many suggestions which have been extremely useful to me. Lady Welby also helped me in a similar way. My brother, Mr. J. F. Stout, has rendered me great assistance in preparing for the press, and in compiling the Index.

Chapters viii., ix., x., and xi. in book ii. have already appeared as articles in the pages of *Mind*. They have in each instance been greatly expanded and altered, so that they may be considered as virtually new. The general Introduction is an expansion and modification of a paper printed in the *Proceedings of the Aristotelian Society* on "The Scope and Method of Psychology". The chapter on "Relative Suggestion" appeared in the *Proceedings of the Society* for 1895.

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ANALYTIC PSYCHOLOGY.

INTRODUCTION.

SCOPE AND METHOD OF PSYCHOLOGY.

§ 1. DEFINITION.

PSYCHOLOGY may be defined as the positive science of mental process. Two terms in this definition require explanation, the terms "positive" and "mental". What do we mean by "mind"? At the outset it is clear that mind exists wherever consciousness exists. Consciousness itself is not susceptible of a positive definition. We may, however, avoid ambiguity in the use of the word by stating the limits of its application. In the present work it will be used in the widest possible sense, to include every possible kind of experience. Unconsciousness is exemplified only in such conditions as a perfectly sound sleep. Thus, when we use the word, we do not imply what is called self-consciousness or the distinction of subject and object. Whenever there is any kind of feeling, there consciousness exists, and wherever consciousness exists, -mind exists. Yet the two terms are not synonyms; consciousness is an abstract term, mind a concrete. A mind is the unity of manifold successive and simultaneous modes of consciousness in an individual whole. But further scrutiny of the nature of the unity in which the manifold modes of consciousness are combined to form a

mind, shows that this unity necessarily implies conditions which are not themselves modes of consciousness. In the very conception of an individual mind it is implied that present conscious process is throughout conditioned by prior conscious process, and this is only intelligible if we suppose that past experience leaves persistent after-effects, which continue when the corresponding consciousness has ceased. Inasmuch as mental process involves the operation of these residual traces, it is not a conscious but an unconscious process. The exact nature of this unconscious constituent of mind is reserved for future inquiry.

In saying that psychology is a positive science, we mean that it investigates matter of fact, instead of laying down canons of criticism. Ethics lays down canons of conduct, æsthetics aims at establishing canons of taste, and logic prescribes canons of reasoning. Among the sciences which inquire into matter of fact are to be ranked mathematics and all the physical sciences, together with certain moral sciences—theory of knowledge, sociology, political economy, and psychology. Psychology, like chemistry or physics, is directly concerned with what is: it does not, like ethics or logic, treat of what ought to be. It is within its province to investigate certain questions of fact; it is totally outside its province to pass sentence of approval or disapproval. It may describe a process of reasoning, and fix the laws according to which it takes place; but it does not seek to criticise the reasoning when completed, and pronounce it valid or invalid. Similarly, it may investigate the causes of human conduct, but it has nothing whatever to do with the question whether such conduct is right or wrong. This characteristic of psychology, the fact that it investigates what is, not what ought to be, may be expressed by saying that it is a positive, not a normative science.

But though psychology is a positive, it is not a physical

science. This point will be best brought out by considering the attempts which have been made to maintain an opposite doctrine. It is urged by certain physiologists that the only way of explaining the phenomena of consciousness is by connecting them with the physical phenomena of the brain and nervous system. From this standpoint the science of mind is regarded as occupying an analogous position to the sciences of sound, heat, and electricity. As sound or light is susceptible of scientific treatment only when it is considered as conditioned by certain modes of motion, so it is held that consciousness in general can only be successfully investigated when neural processes are made to play the same part in psychology as do the vibrations of air and of æther in acoustics and optics. But the supposed analogy between the cases of sound or light, and that of consciousness, is not a just one. The phenomena of sound as given to the ear, or of colour as given to the eye, are not themselves capable of supplying subject-matter for a physical science, because they are not connected *inter se* according to a fixed and systematic order. The uniformities, or approaches to uniformity, which are susceptible of being formulated in terms of colour, or of sound as such, are inadequate to form the basis of a system of interdependent truths. The same fact is expressed, though in a misleading way, when sounds, colours, etc., are said to be subjective in contradistinction from their objective mechanical conditions, or when they are called secondary as opposed to primary qualities. In any case, it is implied that there neither is nor can be a science of light as seen, or of sound as heard, or of heat as felt. If in like manner mental processes were incapable of being reduced to a definite order of co-existence and sequence *inter se*, there would be no such thing as psychology. The distinctive aim of the psychologist is to investigate mental events themselves, not their mechanical accompaniments or antecedents. If the course of mental

events is not regulated by discoverable uniformities capable of being interconnected so as to form a coherent system, the psychologist has nothing to do. It is incorrect to say that on this assumption his science becomes absorbed in physiology. It does not become absorbed ; it simply ceases to exist in any form whatever.

The claim of physiology to be the only possible basis of psychological theory is sometimes urged on what may be called a metaphysical ground. The ground on which this claim is founded is most distinctly and intelligibly formulated by Mr. Shadworth Hodgson. He lays down the general principle that explanation of how things come to be, as distinguished from analysis of what they are, must be expressed in terms of matter, because matter, being the only known real agent, is the only real condition of genesis. As against this view, I would urge, in the first place, that even if material agency were the only real condition of mental occurrences, it would not follow that all psychological explanation must be physiological. If certain uniformities can be observed or inferred in the course of the mental events themselves, there is no valid reason why we should not investigate them for their own sake, even though their real ground should remain for ever hidden. Uniformities of co-existence and sequence on the physiological side may find an expression more or less complete on the mental side also ; and they may therefore be independently studied from this side. Nay, they not only may, but they must be so studied, if they are to be investigated at all.

This may be confidently affirmed on the ground that there is no direct means of tracing the connection between a mental fact and the corresponding physiological fact. There is a gulf fixed between the physical and the psychical, of such a nature that it is impossible coincidentally to observe an event of the one kind and an event of the other kind, so as to apprehend

the relation between them. Instead of immediate observation, we have to use a very indirect and insecure process of inference, which, depending as it does on a comparison of the mental phenomena with the physiological, presupposes an independent knowledge of both sides. For these reasons it must be maintained that, even if matter were the only real agent, psychology would nevertheless remain a field of inquiry distinct from that covered by the investigation of the material organism. In the next place, there is no justification for the statement that matter is an agent in any sense in which mind is not so. This statement is certainly the reverse of self-evident or natural. A large proportion of mankind seem to have held exactly the opposite view. Those who deny agency to consciousness, finding that mental events occur which are not immediately traceable to other mental events, assume that they are due to material agency. Similarly, men who lived before the development of physical science, and those who at the present day live outside the sphere of its influence, being continually confronted by material changes not easily traceable to mechanical antecedents, assume that they are due to spiritual agency. The sun moves without being pushed; therefore the sun is alive. How can the modern materialist show that he has any better guarantee for his position than the untutored Indian has for his? Physical science has shown the thorough-going and continuous interconnection of all material events as parts of a single mechanical system. There is nowhere any room within the mechanical series for the interposition of conditions which are not mechanical. Thus the crude animism of the savage is no longer possible for most of us, but for the same reason such refined materialism as that of Mr. Shadworth Hodgson ought also to be impossible. If the continuity of the mechanical process debars us from regarding a movement as due to a volition, it must in

like manner debar us from regarding a volition as due to a movement, even of brain particles. So far as we have come to believe in matter as the only real agent in material processes, we seem to owe this belief to our growing insight into the continuity of these processes as parts of a single system; but when we come to consider the connection between physiological and mental events, we find a marked breach of continuity. No analysis can discover in the psychological fact any traces of its supposed physical factors.

The distinctive position of psychology will appear still more clearly from the following consideration. According to the ideal of physical knowledge which prevails at present, the several physical sciences may be regarded as fragmentary portions of a single total science, having for its object the material world considered as a single continuous mechanical system. The lines of demarcation which divide them are due to our ignorance. With the attainment of perfect knowledge these lines would disappear, the more specialised sciences being absorbed in the less specialised by reduction of the more complex processes to the more elementary, and by exhibiting the elementary in their complex combinations. Thus a perfected biology would consist in the application of the general principle of physics and chemistry to a special case of peculiar complexity—that of vital phenomena. Now, no science of matter stands to psychology in a relation analogous to that in which chemistry and physics stand to biology, or physics to chemistry, or mechanics to physics. Mental processes cannot be explained as special complications of processes which are not mental, nor can they enter into the composition of such processes. In the one continuous science which would result from complete knowledge of the material world, there would be nowhere any place for psychology. It follows from the above statement that the field which falls under the survey of the

physical inquirer is quite distinct from that which forms the province of the psychologist. Nevertheless, the very conception of psychology implies an essential connection between it and physical science. Only by exhibiting the nature of their connection can their antithesis be brought into the clearest light. They are essentially connected, inasmuch as psychology logically presupposes the existence of physical knowledge as its point of departure. For the same reason they are essentially distinct. Whereas physical science consists in knowledge of the material world, it is a primary problem of psychology to investigate how such knowledge comes into being. On the one hand, apart from physical knowledge psychology could not exist, because it would be deprived of its indispensable subject-matter. On the other hand, physical science might conceivably be carried to a high degree of completeness apart from any implied advance in psychology, because we might have perfect knowledge of the material world and yet remain ignorant of the process through which such knowledge had arisen. The law of gravitation, for example, is a law of matter and an object of physical science. Knowledge of this law by no means involves knowledge of the laws of the process through which Newton discovered it; these are laws of mind and objects of psychological science.

Psychology investigates the history of individual consciousness, and this coincides with the history of the process through which the world comes to be presented in consciousness. It treats of knowledge as something which is subject to time-vicissitude, as something which can be learned or forgotten. When, on the other hand, the nature of knowledge is considered apart from its genesis, it becomes the subject-matter, not of psychology, but of metaphysics. It is the province of metaphysics to discover the essential constituents of cognition, apart from which it would not be cognition at all. When

knowledge is thus considered in abstraction from its time-vicissitudes, what remains to be investigated is its relation to the thing known *quâ* known. Thus, in Kantian language, we may say indifferently either that metaphysics investigates the "conditions of possible experience," or that it investigates the nature of an "object in general". In order to perform its function, it must convert the implicit presuppositions of science into explicit objects of science, thus raising the human mind, as it were, to a higher platform from which to regard the world. The aim of psychology is, on the contrary, purely retrospective. The psychologist does not attempt to climb higher; instead of doing so, he turns to look back upon the scenes he has already traversed. Starting from his existing standpoint, he does not attempt to transcend it; he seeks rather to go back upon the traces of experience, and to ascertain how his existing standpoint has arisen.

The outcome of our inquiries is that psychology is distinguished from the physical sciences inasmuch as their aim is to know the material world, whereas it deals with the question how this knowledge arises.

We find that it is distinguished from metaphysics inasmuch as it is concerned with the genesis of cognition from a historical point of view, not with the analysis of the finished product from a critical point of view.

§ 2. METHOD. THE DATA OF PSYCHOLOGY.

Psychology, like physical science, aims at the establishment of continuity among observed facts, by interpolating between them intermediate links, which elude observation. The question of method has accordingly two divisions. We have to treat (1) of the method of collecting data, and (2) of the method of colligating them by means of hypotheses.

A. Products of Past Process.

We may define psychology as the science of the development of mind. Now all sciences of development depend on two classes of data, the first referring to the successive phases of the product which is evolved, the second referring to the nature and laws of the process through which it passes from one phase to another. Development is accumulated modification; it involves the persistence of the product of past process as the basis of succeeding change. It is only through these persistent effects that we can take cognisance of bygone processes which lie beyond the reach of observation or memory. Hence, if we wish to trace the course of evolution, it is indispensably necessary to note the series of successive phases, through which the final outcome is attained. The observation of the nature and arrangement of geological strata supplies indispensable material for tracing the history of the earth. So, too, biology, in investigating the history of living organisms, finds its data in the comparison of the species which have actually been evolved. And similarly, in order to study mental evolution, we must examine the series of successive stages, which intervene between the most rudimentary consciousness and our own developed standpoint. There are psychological strata as well as geological strata. There are psychological as well as biological species. Nor is it difficult to discover these products of mental process.

All such data are objective. They consist of facts relating to *what* an individual sees, hears, wills, desires, perceives, conceives, or imagines, and not to the process *whereby* he comes to do so. Since the whole world, as it exists for an individual consciousness, whether from a practical, theoretical, or æsthetic point of view, has come so to exist through prior mental process, it may be said that there is no objective fact which is not capable of being utilised by the psychologist.

From this point of view we may say, with Dr. Ward, that "the whole choir of heaven and furniture of earth," so far as they are known, are data for psychology.¹ So, too, are all works of imagination, *e.g.*, the *Iliad* or *Hamlet*, or Grimm's *Fairy Tales*, and all rules of conduct, *e.g.*, Roman law, the Brahman ritual, the four books of Confucius and Mencius. We must, however, carefully note that mere examination of mental products is valueless for psychology, except in so far as it helps us to trace mental process. This purpose is best served when we can arrange the products as parts of a historical series, in which each may be treated as the goal of preceding, and the starting point of succeeding, development.

Thus we may profitably compare the views of the world, as it presented itself to Why Why in Mr. Andrew Lang's tale, to Homer, to Socrates, and to Darwin respectively. Hence the great importance of philology and anthropology to the science of mind. The products of thought are embodied in language, so that the comparison of the vocabulary and of the syntactic structure of different languages is a means of comparing different stages of mental evolution. The comparative study of the religious and other beliefs of primitive races has the same kind of psychological value, and the same holds good as regards their technical and artistic productions.² It may well happen that contributions from such sources may ultimately prove of at least as much importance as those yielded by physiology.

Again, apart from any reference to historical order, we may compare the same object as it is presented in various phases of completeness to different minds, or to the same mind under

¹ Article "Psychology," *Encyclopædia Britannica*, 9th edition, vol. xx., p. 38.

² As good examples of special works on these lines, we may refer to Dr. Ernst Grosse's *Die Anfänge der Kunst*, and to Dr. Wallaschek's *Primitive Music*.

different conditions. This course yields important results, when we can assign definite circumstances on which the variation depends. Thus, by comparing space as it exists for persons possessed both of sight and touch, with space as it exists for the blind, we may obtain valuable data for determining the part played by visual experience in the development of this perception. A flood of light is thrown on the conditions of mental development in general by examination of the cases of such abnormal individuals as Laura Bridgman or Helen Keller. Under the same head come the data supplied by mental pathology, including cases of aphasia, psychic blindness, and so forth.

It is also possible, in a wide range of cases, to vary external conditions experimentally, and to note the result. This line of inquiry has been followed up with great ardour, and on the whole with encouraging success. The value of the experimental method in psychology is twofold. In the first place, it facilitates introspection, and confines it to definite issues. In the second place, it correlates definite variations in the results of mental process, with definite variations in its conditions. It is the second application of the method which concerns us here. The experiments on which Weber's law is founded supply a simple illustration. Here the condition which is varied is the intensity of the stimulus, and the mental result which is correlated with it is the judgment of comparative intensity. As another instance we may adduce the use of the stereoscope. Nothing, perhaps, has contributed so much to our knowledge of the process on which the perception of solidity depends, as comparison between the appearance of dissimilar perspectives stereoscopically combined, and that presented by flat surfaces generally. In all these cases, what we observe and compare are not psychological processes, but their products. These do not constitute a special subject-matter peculiar to psychology. They are, on the contrary,

included among the objects of the other sciences and of ordinary knowledge. Thus, when we experiment with the stereoscope, the question put to the person who looks at the dissimilar perspective is not, "What process do you, by introspection, find to be going on in your mind?" but simply, "What do you see?" Similarly, in experiments on Weber's law, the question propounded to the experimentee relates to the actual intensity of the stimulus as it appears to him; he is required, for instance, to decide whether one weight is heavier than another.

What is throughout distinctive of psychological method is that it is not concerned with the validity of individual judgment, or with the worth of individual volition, but only with their existence and genesis. This is what Dr. Ward means when he says that "the standpoint of psychology is individualistic".¹ It is concerned with what appears to the individual mind. Whether what so appears to the individual mind ought or ought not to appear in like manner to all minds, is a question for the logician or epistemologist, or for the man of science, but not for the psychologist. The psychologist takes note of what men actually believe, irrespective of the truth or falsehood of their belief. His function is to understand, not to justify or condemn. He is concerned with appearance only. For him the crude superstitions of Australian aborigines have as much interest and value as the developed and accurate knowledge of a Newton or a Faraday. It is not the world as it ought to appear, but the world as it does appear, which is the outcome of psychological development; and this is constituted as much by illusions and delusions as by correct perceptions and beliefs.

B. Observation of the Process of Consciousness and of its External Signs.

Turning now to the second class of psychological data, we

¹ Article "Psychology," p. 38.

have to inquire into the means by which we are able to observe the nature and the laws of the process through which the mental product passes from one stage to another.

There are three sources from which we obtain facts of this kind ; two ultimate and independent, the third secondary and dependent. The first is introspection, or the perception of what takes place within our own mind. The second is the remembrance of past psychological processes, which have taken place within our own mind. This method may be conveniently termed retrospection. In other sciences we only remember what we have previously noticed. In psychology the inverse often happens. The reminiscent revival of a mental event enables us to notice features in it which had escaped unnoticed on its original occurrence, because attention had then been preoccupied by other objects. It has been maintained that all so-called introspection is in reality retrospective. On this view, the modifications of our consciousness vanish on being noticed, so that we do not apprehend them until they are past. We shall see later on that there is sufficient justification for this doctrine. But there is a broad distinction between cases in which our bygone state is directly recognised as such, and those in which it is not so. The third source, a derivative and dependent, but immensely important one, is to be found in observation of the outward signs of what passes in the minds of others or even in one's own mind.

Under this last head I do not include the communication from one man to another of physical or even of psychological knowledge already acquired. Signs, so far as they mediate such communication, indicate objects already presented. They stand for mental products, not for mental processes. It is characteristic of them that their significance to the person to whom the communication is made, depends entirely on the assumption that they are understood in the same sense by the person who makes it. This kind of intercourse is of the greatest service

to the introspective psychologist ; it enables him to check his results by comparing them with those of others, and so to ascertain whether they are due to idiosyncrasy or mal-observation, or, on the contrary, are valid for all consciousness in certain phases of development. In physical science an observation made by one person and unconfirmed by others is regarded as valueless. I have no hesitation in saying that in psychology we ought to be no less rigid. No general principle can be legitimately accepted on the evidence of introspection or retrospection alone, unless it has been corroborated by a consensus of experts. But, however valuable this procedure may be to the psychologist, it is not a distinct method of inquiry ; it is only the intercommunication of knowledge already acquired by other means.

If our third method is really a separate source of knowledge, it must consist in the observation of phenomena, which betoken the existence of mental processes, quite independently of their being perceived or unperceived by the mind within which they take place. Thus we may interpret a given line of conduct as indicating certain motives, although we believe the agent himself to be unaware of how he is actuated. Similarly, we may regard a blush as evidence of shame, or paleness as one of anger, although the person observed fails to notice either the emotions or their external manifestations. In these cases we use a third method, distinct from either introspection or retrospection. It is, however, as stated above, a derivative method which presupposes the other two, although they do not presuppose it.

There is no such thing as direct observation of other minds ; all that is immediately perceptible consists of sensible signs and tokens of inward events ; and these sensible signs and tokens are interpretable only through knowledge obtained by introspection or retrospection.

It is fundamentally impossible for any man to penetrate

directly into the consciousness of his fellow-man, to say nothing of beings who are not men. For each of us the existence of minds distinct from our own is, from the standing ground of logical and reflective consciousness, a matter of inference. It is not an observed fact, but only a way of interpreting observed facts. All depends on accurate resolution of our own complex consciousness into its constituents, and on re-compounding these in such a way and in such proportions as to explain the nature and order of the signs which indicate to us the mental processes of others. This applies both to our every-day experience and to advanced scientific research. The only difference is that in the latter case the inference from sign to thing signified is much more indirect, difficult, and dubious.

The physiologist, even if he knew all about the nervous system, down to the minutest details of structure and function, would be as powerless as ever to gain any direct insight into the corresponding mental processes. The attempt to do so would be exactly like an attempt to learn the meaning of a book in an unknown language, merely by studying the shape, size, and arrangement of the letters composing it. Just as the interpretation of the written characters is distinct from their structure as marks on paper or parchment, and must be learned from other sources, so the interpretation of physiological data is distinct from bare knowledge of these data, and presupposes another group of facts otherwise revealed.

Not only does this indirect knowledge of the psychical phenomena of other minds supplement and extend the direct knowledge gained by self-examination, it also extends the scope and increases the precision of introspection. Our power to discriminate the constituents of a complex phenomenon depends upon the degree in which we have been used to consider them each singly, in isolation from the complex in which they are presented. Now, in constructing representations of the

mental life of others from data supplied by our own, we are compelled to disengage the component parts of our experience from the context in which they have previously been presented, and to combine them afresh in a way determined by the mode of combination of the physical phenomena which we are interpreting as outward signs of inward process in others. Hence, in future introspection, we shall be able to detect these components where they would otherwise have escaped our notice, just as one who has made a machine possesses, on that account, a better eye for machinery, or as a portrait painter has a better eye for faces than one who has never been compelled to attend separately to the individual features.

We may experiment with conscious beings and note their resulting behaviour as a sign of their mental condition. This method is of the greatest value in the case of animals and infants. Mr. Lloyd Morgan's experiments with dogs and Professor Baldwin's with his own children furnish good examples. The application of the experimental method to human beings who have a sufficient command of language to describe what they perceive and think is predominantly of the kind referred to under § 2, A.

§ 3. METHOD. HYPOTHESES OF PSYCHOLOGY.

Having now passed in review the chief sources of psychological data, we must next consider the nature of the hypotheses by means of which these data are interconnected so as to form a single coherent system. Just as, in physical science, we account for observed facts by assuming unobserved conditions, so, in mental science, we must transcend experience in order to explain experience. Only part of the factors which determine mental processes are definitely recognisable in consciousness. The rest, even if they are not unconscious, are at least undiscriminated. Hence all psychologists have ex-

plicitly or implicitly recognised the necessity of going beyond the data of introspection, in order to frame some kind of explanatory hypotheses.

In doing so they have adopted one or other of three courses. Either (A) they have treated class concepts of mental phenomena as if they were real forces producing these phenomena, or (B) they have endeavoured to apply physiological facts and assumptions to the explanation of conscious processes, or (C) they have assumed factors unconscious or at least undiscriminated, which operate according to laws analogous to those of conscious process, or easily to be inferred from the nature of conscious process.

A. Faculty Hypothesis.

Of these three methods, the first need not detain us long. The Faculty Psychology, as it is called, has now a purely historical interest. Its origin and excuse is to be found in what we may term the natural fallacies which attend the first essays of introspective analysis. Physical phenomena, for the most part, wait to be examined and compared in detail; or, if they are transient, they can often be repeated at will. The objects of inner perception are, on the contrary, in most cases evanescent, and insusceptible of arbitrary repetition. Hence they can only be observed in transitory glimpses, in which recognition is in the first instance mediated by the most obvious features which they possess in common. Definite details can only be reached as the cumulative results of a long course of systematic introspection, carried on from generation to generation, and constantly tested by an appeal to the consensus of experts. The process may be compared to that by which the features of a picture or other object gradually emerge into distinctness, when it is presented to the spectator not continuously but in a discontinuous series of instantaneous electric illuminations. Hence, in the infancy of

introspection, when specifying details escape notice, there arises a kind of involuntary generalisation, giving birth to class concepts, useless for scientific purposes, because, from their very nature, they cannot be applied to specific cases. Accordingly in the older psychologies, which are almost exclusively based on introspection, we find a tendency to make broad and sweeping divisions instead of definite attempts to give detailed explanations of particular phenomena. The only way of giving to generalisations of this kind even the semblance of direct utility was to falsify their nature, and the most obvious and convenient kind of falsification was to treat them as if they were forces instead of mere class concepts. Now the human mind has always been prone to invest abstractions with an illusive reality. In introspective psychology this tendency is peculiarly strong, because the plurality of particular instances which exemplify the class concepts are, as regards their specialising details, so fugitive and indistinct.

On these grounds alone it is easy to understand the nature and origin of the faculty psychology.

It becomes yet easier to do so when we consider how essential the idea of development is to mental science, and how imperfectly it was understood until comparatively recent times. Perhaps Leibnitz's theory of the internal evolution of his monads is the first clear application of the principle. If Locke receives credit for having attacked innate ideas, Leibnitz ought to receive at least as much credit for having attacked innate faculties. He condenses his polemic in the pregnant maxim, "A naked possibility is nothing".

Real explanation assigns definite conditions through which, by the operation of definite laws, definite results must arise. Where we cannot thus resolve a fact into its factors, such words as potentiality, faculty, susceptibility, are mere masks for our ignorance, and ought to be acknowledged as such. Now, the distinctive tendency of the faculty psychology, as

such, was to treat a naked possibility as if it were something as if, in fact, it were identical with its own realisation, hidden away in some mysterious fashion. The followers of this method, in so far as they did follow it, ascribed to the undeveloped consciousness in the form of dormant powers the same activities which they discovered by introspection in themselves. It never seems to have occurred to them that the powers of understanding, willing, imagining, etc., instead of existing at the outset, might have arisen as the result of a long series of changes, each of which paved the way for the next. The fundamental error of the faculty psychology was a too exclusive reliance on introspection, as if it immediately supplied the explanation of the facts which it revealed, instead of being merely a point of departure for the framing of hypotheses which can be otherwise tested. Just as the geologist applies his knowledge of the changes which actually take place at the present time, in order, hypothetically, to reconstruct the history of the earth in the past, so the psychologist must use his direct knowledge of mental processes as far as he can, in order, hypothetically, to reconstruct the past history of consciousness, both in the individual and in the race; and just as the geologist is guided by a definite succession of strata, which require definite series of changes to account for the transition between them, so the psychologist ought to be guided by a definite succession of forms successively assumed by the products of mental processes which also require definite series of changes to account for the transition between them.

B. Physiological Hypothesis.



The second method of explanation is the physiological. We have already considered the claim of physiology to be the only basis of psychological theory. What remains to be here discussed is the special question, how far it is legitimate

and necessary to have recourse to physiological facts or hypotheses when the exigencies of explanation lead us to postulate factors which do not enter into consciousness, or, at least, are inaccessible to introspective observation. As regards the legitimacy of this procedure, it is futile to raise abstract disputes. Any method is legitimate in a science which furthers the specific end of that science, and solves, or helps to solve, its special problems. The specific aim of psychology is to give a connected account of conscious process. If and so far as the existence and inter-connection of conscious states is most distinctly and intelligibly formulated by the introduction of physiological links and co-operating conditions, the physiological method is undoubtedly legitimate. But it does not follow that it is the only legitimate method, or that, at least in the present state of the science, it is for all purposes the most useful and effective. The third course, by which unconscious or undiscriminated mental factors are posited for the explanation of conscious process, has at least a practical justification in the present state of psychology. In my opinion, it is also theoretically, and justifiable, but this point I shall here waive, as being of recent of metaphysical than psychological significance.¹

The practical justification is grounded in the fact that, if only possible point of departure is in the data of introspection. These must be ascertained before it is possible to begin the arduous task of discovering the precise manner of correlation between specific modes of conscious process and specific modes of physiological process. In point of fact, next to nothing is known of the details of this correlation. On the other hand, the introspective psychologist finds that he can give no connected account of conscious process, without

¹ Readers interested in the metaphysical question may refer to Paulsen's *Einleitung in die Philosophie*, and to Wundt's *System der Philosophie*.

transcending the data of introspection. He finds that these data themselves lead him to go beyond them in a certain definite manner and direction. As we said at the outset, it is implied in the very conception of an individual mind that present conscious process is throughout conditioned by prior conscious process, and this is only intelligible if we suppose that past experience leaves persistent after-effects, which continue when the corresponding modes of consciousness have ceased.

We shall now proceed to consider the nature of the assumptions to which the psychologist is necessarily led on these lines, and we shall then return to the examination of the physiological method. The introspective psychologist, as such, may transcend introspective data, either by positing conditions which lie wholly outside the sphere of consciousness, or by positing conditions which are experienced but not accessible to introspection. Thus we have to consider, (1) The doctrine of Psychological Dispositions, (2) The doctrine of Sub-Consciousness.

C. (1) *Psychical Dispositions.*

and all the permanent products stored up in the mental or-definition have found their way there through a period of consciousness; they serve their function in the mental economy mainly during a return to full consciousness. Consciousness thus resembles the scenery of a theatre actually on the stage at any one moment, which scenery is a mere selection from the stores in reserve for the many pieces that have been, or may be, performed.”¹ What Dr. Bain here speaks of as “stores in reserve” may, when regarded from a certain point of view, be appropriately termed psychical dispositions, and, from another point of view, physiological dispositions. A person entirely ignorant of the existence of a

¹ Dr. Bain. *Mind*, xi., N.S., p. 353.

nervous system, or of any material system bearing an analogous relation to conscious life, might yet be aware of the existence of permanent mental conditions lying outside consciousness, and yet playing an indispensable part in psychical process. These conditions would for such a person be merely psychical dispositions ; he would be led to assume their existence purely by the broad facts revealed to even the most superficial introspection, without any reference to the material conditions or accompaniments of the flow of conscious states. It is impossible to formulate in words from the introspective standpoint the most ordinary facts of retentiveness and memory, without implying that past experiences leave behind them after their disappearance persistent traces on which their revival depends. Indeed, there is a strong tendency in ordinary language to speak of these traces as if they were the presentations themselves persisting in a state of unconsciousness. This comes out clearly in such phrases as "storehouse of ideas," applied to the memory. Of course such modes of expression cannot possibly be regarded as legitimate when taken too literally. But they seem to have a certain justification, when we consider that the only mode of representing to ourselves the existence of these traces, is by transferring to them the characteristics of the corresponding experiences. This remains true to a very large extent even when we recognise that psychical dispositions are also modifications of brain substance. For this assumption does not of itself enable us to trace the inter-connection of the dispositions and the part they play in mental process. For this, we continue in the first instance to be dependent on introspective evidence. If we endeavour to adhere strictly to physiological language, the result can only be a thinly disguised failure. We can only refer to this or that physiological disposition as the disposition corresponding to this or that mode of past experience. In other words, we cannot refer to it as a physiological

disposition without at the same time referring to it as a psychical disposition. Now, for the sake of clearness, it is very often necessary to separate unambiguously the purely psychological evidence concerning the inter-connection and mode of operation of residual traces, from corresponding physiological data and hypotheses. When and so far as this is the case, it is best simply to use the term "psychical disposition" without any physiological reference. When, on the other hand, we desire to consider exclusively the physiological side, the term "physiological disposition" is in place. When both are simultaneously to be taken into account, it is appropriate to speak of a "psycho-physical disposition". Only by such a nomenclature as this is it possible to avoid clumsy circumlocution, and artificial attempts to state from one point of view what can only be satisfactorily stated from a different point of view.

It is necessary to realise clearly that psychical dispositions form an indispensable factor in mental process throughout conscious life. All change and transition depend on the excitement of dispositions previously unexcited, or not excited in the same manner and degree. In the attempt to recall names it is evident that what takes place in consciousness is only one condition determining the result. Whether the conscious endeavour shall be successful or unsuccessful depends on psycho-physical conditions which at the outset are extraneous to the conscious process. In the attempt to recollect we fix attention on circumstances connected with the name which we seek to recall. The rest depends on revival by association, and this revival means the bringing into consciousness of what is not already present there, by what is so. Whether the revival actually takes place or not depends on another co-operative factor. It depends on the excitability of a pre-existing disposition, and the process of revival consists in an interaction between presentations in consciousness with their

physiological concomitants, and a certain psycho-physical preformation, which remains outside of consciousness, if and so far as the revival has not already taken place. What is true in the case of a voluntary attempt to recollect, holds good with perfect generality of all transitions from one presentation to another, through suggestion based on preformed association. We may even go further than this. The mere retention of a presented content in consciousness involves the continued excitement of a psycho-physical disposition, and is conditioned by its excitability, which in its turn is partly conditioned by the supply of nutrition to the brain. This fact is unmistakably implied in the phenomena of mental fatigue and the like.

C. (2) *The Hypothesis of Sub-Consciousness.*

It is impossible to avoid considering a theory which is sometimes made to fulfil the same office as that of psychical dispositions. It is sometimes urged that instead of assuming residual traces of previous experience persisting outside the sphere of consciousness, we should assume a system of persisting modifications of consciousness of so extremely low a degree of intensity that they have no appreciable power to influence the direction of attention. These "sub-conscious presentations," as they are called, are experienced as a complex totality, but their differences are not distinguished. To quote Dr. Ward, they "may tell on conscious life, as sunshine or mist tells on a landscape or the underlying writing on a palimpsest, although lacking either the differences of intensity or the individual distinctness requisite to make them definite features".¹ I freely admit the existence of sub-conscious presentations as thus described; indeed, it seems to be involved in the doctrine of anoetic sentience on which much stress will be laid in the present work. But it seems to me quite unwarrantable to assume that the totality of our mental acquisitions, the whole system of

¹ Article on "Psychology" in *Encycl. Brit.*, part xx., p. 48.

residual traces deposited by previous experience, is or can be present in this form in every moment of our conscious lives. This view will appear to most people to be *primâ facie* in the last degree unnatural and hard to be believed, though if they endeavour to directly refute it, they will probably be greatly surprised at the difficulty of the task. However, in view of the purely hypothetical nature of the assumption, it will be sufficient to show that even so strenuously logical a writer as Dr. Ward fails to work it out consistently. He says: "The qualitative differences of all presentations and the distinctness of structure of such as are complex both diminish with a diminution of intensity. In this sense much is latent or 'involved' in presentations lying below the threshold of consciousness that becomes patent or 'evolved' as they rise above it."¹ These words seem to contain a fatal admission. They imply that presentational differences not only cease to be distinguished, but cease to be experienced.

In so far as this is the case, they cannot be themselves retained, however sub-consciously; they are not in consciousness at all, and we are compelled to recognise that what persists in their case is an unconscious psychical or psycho-physical disposition. But if once the existence of such dispositions is admitted, it seems arbitrary to limit their range. The disappearance of any kind of presentational differences from consciousness is the disappearance of presentations from consciousness. It is impossible to suppose that Dr. Ward is using the word "presentation" in any restricted sense, which would render this inference nugatory: at any rate, if he is here attaching to the word such a restricted meaning, he is inconsistent with himself. According to his own express teaching, every presentational difference is itself a presentation. On the physiological side, Dr. Ward argues, as against Wundt, that the "physical disposi-

¹ Article on "Psychology" in *Encycl. Brit.*, part xx., p. 48.

tion" corresponding to a psychical disposition may "consist in a continuous but much fainter discharge of function". This is a point which I have no desire to dispute. But it must be urged that this physiological hypothesis is not an adequate logical counterpart of the theory of sub-consciousness. It is conceivable that there may be a certain kind and degree of functional activity without any correlated modification of the individual consciousness. But even if we admit that the "faint and continuous discharge of function" corresponding to a psychical disposition always has a correlate in conscious experience, it does not follow that this correlate is the same presentation which accompanies the full and intense discharge of function. According to Dr. Ward's own admission, presentational differences, which are absent in the case of the fainter, emerge with the fuller and intenser activity. In relation to these emerging differences the pre-existing fainter activity can only be regarded as a physiological disposition correlated with a psychical disposition, and not as an actual functional activity correlated with an actual presentation.

§ 4. THE PSYCHOLOGICAL APPLICATION OF PHYSIOLOGICAL AND PHYSICAL THEORY.

An individual mind is not a monad developing entirely from within; its life is not a continuous evolution in which each succeeding phase is merely an outcome of the preceding. On the contrary, it is constantly subject to change which is not purely a continuation of prior process, but which takes the form of determination from without, conditioning and determining internal development. One form of this external influence is what we call sensation or sense-impression, and its immediate antecedent, so far as this is definitely ascertainable, consists in physiological process within a material organism, conditioned by corresponding physical process in

its environment. Thus, in order to explain how the world comes to be known, we must presuppose that it exists, and that we, from our psychological standpoint, know something about it. We are indeed told by Dr. Bain that it is a contradiction to suppose "a material world, in the first instance, detached from perception, and, afterwards, coming into perception, by operating upon the mind". "The prevailing doctrine," he says, "is that a tree is something in itself apart from all perception; that by its luminous emanations it impresses our mind, and is then perceived; the perception being an effect and the unperceived tree the cause. But the tree is known only through perception; what it may be anterior to, and independent of, perception, we cannot tell; we can think of it as perceived, but not as unperceived."¹ But why should we be forbidden to think of what is perceived by us as unperceived by some one else, or by ourselves in an earlier stage of our history? It would, indeed, be a contradiction to suppose that the undeveloped consciousness knows the material world as presented to us who are tracing its development. But it is legitimate to recognise that we know it ourselves, and to make use of our knowledge. Another possible objection is that in introducing these material antecedents we are giving up the position claimed for psychology as entirely distinct in scope and aim from each and all of the physical sciences. The line of demarcation, which we drew so sharply, seems to become blurred and indistinct. This, however, is an illusion, due to a misconception of the way in which we make use of these physical data. No consideration of the physical antecedents as such needs to be included in any strictly psychological proposition. We take account of them only in so far as they are indispensable helps in determining and defining the nature and order of changes produced in the mind from without. But this is

¹ *Mental Science*, p. 198.

only a preparatory step, a kind of scaffolding to psychology, no part of the building itself. The psychologist is primarily concerned not with the antecedents of externally initiated changes, but with these changes themselves, inasmuch as they modify preceding and determine succeeding mental states. Thus, though these physical facts supply data indispensable to the solution of psychological problems, yet they do not themselves belong to the essential subject-matter of psychology:

There is another group of physiological determinants of conscious process distinct from those on which sensation depends. The life of the brain is part of the life of the organism as a whole, and inasmuch as consciousness is the correlate of brain-process, it is conditioned by organic process in general. The alternation of sleeping and waking, the antithesis of freshness and fatigue, and all the variations in our mental condition, which are traceable to the kind and quantity of the nutritive supply, come under this head. None of these facts can be definitely formulated without taking into account factors extraneous to conscious process. From this point of view it is clear that the unity and connection of psychical states cannot be clearly conceived without taking into account the unity and connection of the processes of the organism as a whole.

Conscious process, besides being conditioned by physical and physiological antecedents, is also itself continually initiating physiological and psychical consequences. Being a part of the general life of the organism, the life of the brain is perpetually influencing organic process, as well as being influenced by it. Change in the state of the muscles, the action of the glands, the distribution of the blood supply, constantly follow upon those brain changes which are correlated with the flow of consciousness. The bodily changes thus initiated possess significance for the psychologist only

in so far as they in their turn become antecedent conditions modifying conscious experience. From this point of view they are of unique importance, for they are not merely modes in which physical change determines mental change; they are modes in which mental change indirectly determines itself. There is a cycle of processes beginning and ending in consciousness. As a typical case, we may take any simple instance of volition. There is first, let us say, the intention to move a limb. This, initiating muscular contraction, is followed by the intended movement. The movement is then experienced and perceived. Thus consciousness determines change in itself by the intermediation of a process which is not conscious.

The general ground which makes it necessary to take account of these physiological and physical antecedents and consequents of conscious experience, is that the individual consciousness is a mere fragment of the general system of the world. Taken by itself it is an abstraction. To understand it we must have regard to the total system of reality to which it belongs, and apart from which it is inconceivable. Now it may be said that the material phenomena to which we have referred do not form a continuous system of which the individual consciousness is part. The brain changes, correlated with consciousness, form part of the material system, but not consciousness itself. This need not be denied, and for the metaphysician it may be a consideration of fundamental importance. But the psychologist may and must disregard it. He has no adequate means of ascertaining the nature of the real system of which the individual consciousness is a fragment, except in so far as it is represented to him by material phenomena. His practical justification for considering these material phenomena as determinants of conscious process is supplied by the fact that they are determinants of the brain-process which is its correlate.

This holds good, almost without reservation, for those physiological and physical factors which we have up to this point considered. But the case is otherwise with those conditions which we have called dispositions. So far as these are concerned, it is possible to make a considerable advance without introducing physiological conceptions. The individual consciousness not merely, like other abstractions, demands to be supplemented in order to be conceived; it also to a large extent by its very nature reveals the nature of the supplementary conditions which alone make its existence possible. We have already shown how this takes place in discussing psychical dispositions. We there noted that such dispositions could also be legitimately regarded as physiological facts. At the same time we pointed out that the physiological view presupposes the psychological, and is based upon it. What remains to be considered is the independent value of the physiological explanation, both in the abstract and in view of the present state of our knowledge. The solution of this problem substantially coincides with the solution of another,—What conditions determine the psychological value of physiological data concerning the nature of the immediate neural correlate of actual conscious process? What follows must therefore be taken to apply equally to the brain states concomitant with conscious states, and to the brain states which form the counterpart of psychical dispositions.

We have to inquire—(1) Under what conditions is it possible, from the data supplied by the physiology of the brain, to deduce psychological truths of which we have no previous and independent knowledge? (2) How far are these conditions fulfilled in the present state of science, or are likely to be so in the future? We may conveniently symbolise mental states by Roman letters *a, b, c, d, e*, and corresponding physiological states by corresponding Greek letters *α, β, γ, δ, ε*,

without attaching significance to alphabetical order. The question with which we have primarily to deal may be stated thus:—Under what circumstances can we infer from the uniformity of co-existence and sequence connecting $\alpha, \beta, \gamma, \delta, \epsilon$, correlative uniformity of co-existence and sequence connecting a, b, c, d, e , which cannot be, or at least has not been, otherwise observed or inferred? Now it seems that for this purpose—(1) some known psychological state a must have a known physiological correlate α ; (2) a must be known to be connected in a definite manner with another physiological state β ; (3) β must be known to have a psychological correlate b ; and (4) the connection of a and b must not be matter of previous knowledge. If all these conditions are realised it is possible to deduce from the physiological and psycho-physical data a new psychological proposition expressing the relation between a and b . If any of those conditions are unrealised, no such deduction can be made. Now if we examine by this test the physiological matter which is introduced into many psychological treatises, we find that much of it has little psychological value. For example, the endeavours which have been made to find a material correlate to the association of ideas have not greatly contributed to advance the science of mind. They are at best more or less felicitous attempts to make a conjectural translation of known psychological facts into the language of physiology. Perhaps the most important contribution in this direction which can be called strictly physiological, is the distinction between the association-fibres which are intra-cortical and the projection-fibres connecting the cortex with the lower centres, taken in connection with the fact that the development of the projection-fibres precedes that of the association-fibres. This may with good reason be taken to mean that the genesis of ideas and their association is preceded and pre-conditioned

by the gradual growth of percepts.¹ But such an interpretation derives all its cogency from a preceding analysis of psychological data. At the best, it constitutes only a welcome corroboration of a result reached by purely psychological procedure. Our knowledge of the physiological processes concerned, and of their correlation with mental processes, is too vague to enable us to make definite and assured physiological inferences which shall be capable of re-translation in terms of consciousness, so as to yield new psychological truths. If anything is gained by such attempts, the gain is physiological rather than psychological. A logical parallel to the relation between mental science and brain physiology is to be found in the relation between physics and mathematics. The treatment of physical problems is immensely helped by their reduction to mathematical equations which admit of solution; but it is in no way helped by their reduction to equations which, either from the nature of the case or from the limited progress of mathematical science, admit of no solution. Similarly, nothing is gained from the point of view of the psychologist by stating physiological problems which correspond to psychological problems unless the former are such as can be solved. On the other hand, it should be noted that psychology may help physiology as well as the converse, and that this happens more often than is commonly recognised. Indeed, one may say that the whole physiological plan of investigation of the higher cerebral process is controlled and conditioned by psychological data, and even by psychological hypotheses. What too often happens is that these data and hypotheses are simply taken up as they appear to crude common-sense, without preliminary analysis and criticism. Unfortunately, the special aptitude which makes a good physiologist is not often combined

¹ See Dr. Ward's article in *Mind*, N.S., vol. iii., No. 12, p. 523.

with any high degree of the special aptitude which makes a good introspective psychologist ; and in spite of the growing recognition of the close bond which connects the two studies, a really good psychological training is rarely combined with a really good physiological training. What may happen when a physiologist is also a psychologist is well exemplified by the researches of Helmholtz in *Sound and Colour*. The progress of the doctrine of aphasia supplies an interesting illustration of the reciprocal aid which the two lines of investigation may yield to each other. On the one hand we have the purely physiological problem of discovering lesions of the brain accompanying diseases of language. On the other we have the psychological problem of analysing the symptoms of these diseases, so as to fix precisely the nature of the psychical disorder in each group of cases. Earlier observations of brain lesions were rendered almost valueless, because corresponding psychological analyses had not been carried out. There is no doubt that much still remains to be done in this direction. The same holds good of mental pathology in general. We may cite the article by Dr. Ward to which we have just referred as a good illustration of the kind of contribution which a skilled psychological analyst is capable of making to the pathological study of the brain. Dr. Hughlings Jackson's writings may also be mentioned here.

Let us now return to the questions with which we started. What aid has mental science received, and what aid is it likely to receive, from the physiology of the brain? Let us first consider what would happen under ideally perfect conditions. If the physiologist were to attain to as clear and definite a conception of brain processes as the physicist possesses of light and sound vibrations ; if he had also an acquaintance with psychology sufficient to enable him to set about establishing definite connections

between elementary mental and elementary physiological occurrences ; if, finally, he had at his command psychophysical means and methods adequate to this undertaking—then, indeed, we might hope for abundant and valuable results. Indeed, it would seem that under such conditions psychology would be wholly absorbed into physiology so that a single indivisible science would result. But at present we appear to be as far from such a consummation as from the establishment of a penny post between the planets of the solar system. As things at present stand, it is clear that psychology must do the main body of its own work on its own lines. At the same time, it should be freely and gratefully admitted that even the present achievements of physiology can and do yield it invaluable aid in its task. Even when the psychologist talks of “Psychical Dispositions,” without any express reference to physiology, and without the introduction of physiological terms, it may very well be that the phrase carries a more definite meaning to his mind, because he is aware that the “psychical” disposition is a “physiological” disposition also. What is of prime importance is to recognise as an absolutely rigid rule of method that the psychologist, as such, must carefully abstain from attempting to pronounce on a disputed physiological question on physiological grounds. Even on psychological grounds, he is rarely, if ever, at liberty to give a definite decision on such questions. His safest course is simply to point out that his psychological data seem to indicate one solution as preferable to another. The final decision must always rest with the physiologist. Exactly the same rules of method hold good for the attitude of the physiologist towards psychological problems. Of the two it seems that the physiologist is the more apt to trespass.

As regards the near future, one point ought to be especially emphasised. Physiological results are likely to be valuable only in proportion as they are controlled and criticised by

psychological analysis. This holds good apart from consideration of such metaphysical questions as whether the brain-process is the sole real agency, and consciousness a mere function, or consequence, or epi-phenomenon ; or whether consciousness is the reality of which the correlated brain-process is a phenomenon, or whether they are two aspects of the same fact. Whatever may be our attitude to such questions, the psychologist has still his own work to do on his own lines ; and for the sake of physiology itself, so far as it entertains the hope of throwing light on the mechanism of brain-processes, he must attempt to do it.

It is idle to require psychology to wait for the progress of physiology. Such a demand is logically parallel to a demand that history or biography, or the practical estimate of character and anticipation of men's actions in ordinary life, shall come to a standstill until they have a sufficient physiological basis. On this view Carlyle should have abstained from writing his *French Revolution*, because he did not know what precise configuration and motion of brain particles determined the actions of the mob who stormed the Bastille.

§ 5. GENERAL DIVISION AND ORDER OF TREATMENT.

I propose a threefold division, including,—(1) A general analysis of consciousness ; (2) an investigation of the laws of mental process ; (3) an investigation of the origin and growth of certain products of mental process which emerge in the normal course of the evolution of every human mind, taken as far as possible in the order of their occurrence. (1) is a preliminary step to (2), and (2) prepares the way for (3).

The development of mind is primarily and ultimately the development of consciousness : whatever else may be included in it is subsidiary to this. But if we are to set about the task

of tracing the evolution of conscious life, we must begin by determining with the utmost accuracy the position from which we start. We must at the outset ascertain the number and nature and mutual connection of those ultimate contents of consciousness and modes of being conscious which do not admit of generic derivation, but at the most only of definition and description. This department of psychology is purely analytical and largely introspective. The point of view proper to it is statical, not dynamical. It is not concerned with the transition between one state of consciousness and another ; its aim is to discover the ultimate and irreducible constituents of consciousness in general. The only modern writer who appears to have fully realised the importance of this preliminary inquiry is Brentano.

In division (2) we pass to the dynamical point of view. At this stage, we have to investigate the general laws and conditions according to which change takes place in consciousness. The method proper to this stage of the inquiry is in one way analytic, in another synthetic. It is analytic, inasmuch as we endeavour to ascertain the general laws of mental process by analysis of what takes place in the fully developed mind. In this respect our procedure may be compared to that of the geologist who acquires his knowledge of the nature of geological changes by observation of the changes which are taking place at the present time. On the other hand, the method we pursue is synthetic, in so far as we begin with the most simple and general laws and proceed from them to the more special and complex. Division (3) is as far as practicable an exposition in genetic order. In it we endeavour to take up in succession the various stages in the development of the individual mind, passing from the more simple and primitive to the more developed and complex. This is what is ordinarily called the synthetic method in psychology. Nevertheless, analysis is indispensable even in this part of the psychologist's task.

There is a twofold need for it. In the first place, in order to give a satisfactory account of the processes which result in a certain product, we must first ascertain what the nature of the product is which we seek to trace to its origin. For example, it is futile to enter upon an investigation of the genesis of the space-perception, without first considering the previous question: What are the essential characteristics of space as it actually is perceived? In the second place, if we are to show how a given result arises from the co-operation of given factors, we must first examine the nature of these factors. If, for example, we are to trace the part played by sensations arising from muscular movement in the growth of the space-perception, we must begin by analysis of these sensations.

In the present treatise we are concerned only with divisions (1) and (2)—with the general analysis of consciousness, and with the general laws and forms of mental process as they are found in the developed mind. The genetic treatment of psychology, which is undoubtedly the most important and interesting, is reserved for a future work.

BOOK I.

GENERAL ANALYSIS.

CHAPTER I.

METHOD AND PRINCIPLE OF DIVISION OF ULTIMATE MENTAL FUNCTIONS.

§ 1. THE KANTIAN DIVISION OF THE MENTAL FUNCTIONS.

TETENS and Mendelssohn are said to have been the first who, by asserting the essential distinctness of feeling and volition, substituted for the dual division of the mental functions into cognition and will, which had been handed down from the time of Aristotle, the triple division into cognition, feeling, and will, which is now current. Kant followed the clue supplied by this classification in the distribution of the parts of his system, the *Kritik of Pure Reason* being concerned with cognition, the *Kritik of Practical Reason* with will, and the *Kritik of Judgment* with feeling. It was in great measure through his influence that the triple supplanted the dual division. Kant's statements on the subject are very meagre. In the introduction to the *Kritik of Judgment* he says: "All faculties or capacities of the soul can be reduced to three, which cannot be derived from one common ground: the *faculty of knowledge*, the *feeling of pleasure and pain*, and the *faculty of desire*".¹ The impossibility of "derivation from a

¹ Bernard's translation, p. 14.

common ground" is here implicitly assigned as the reason which justifies the classification. Later writers have for the most part confined themselves to the same kind of negative justification without assigning any positive *principium divisionis*. Thus Hamilton lays stress on the possibility of conceiving one faculty as existing in separation from another. Arguing against those who regard the "faculty of cognition as the fundamental power of mind from which all others are derivative," he admits that the cognitive function is an indispensable condition of feeling and desire, but maintains that "in these modifications a quality, a phenomenon of mind, absolutely new, has been super-added, which was never involved in, and could therefore never have been evolved out of, the mere faculty of knowledge". He then proceeds as follows: "We are able to conceive a being possessed of the power of recognising existence, and yet wholly devoid of all feeling of pain and pleasure, and of all powers of desire and volition. We can further conceive a being possessed of knowledge and feeling alone . . . and yet devoid of that faculty of voluntary agency,—of that conation, which is possessed by man. . . . On the other hand, however, we cannot possibly conceive the existence of a voluntary activity independently of all feeling ; for voluntary conation is a faculty which can only be determined to energy through a pain or pleasure."¹ We need not here examine the statements contained in this passage. What I wish to insist on is that, however correct they may be, they contain no adequate justification of the triple division of mental functions. Following Hamilton's method we should be logically bound to regard hearing, seeing, tasting, and smelling as fundamentally distinct mental functions ; for it is quite easy to conceive any one of these as existing in separation from the others. Similarly, the susceptibility of

¹ *Lectures on Metaphysics*, vol. i., pp. 187-188.

feeling pain would have to be regarded as radically distinct from the susceptibility of feeling pleasure, and the like would be true of desire and aversion. Indeed, it would become necessary to make an indefinite number of fundamental divisions. For the power of seeing one colour, *e.g.*, red, does not admit of derivation or deduction from the power of seeing another, *e.g.*, blue, and the same holds good of all the qualitatively diverse contents of consciousness.

Professor Brentano was the first to adopt this line of criticism. He rightly insists on the necessity for a positive principle of classification by which the ultimate division of mental functions can be explained and justified.

§ 2. POSITIVE PRINCIPLE OF DIVISION; THE MODE IN WHICH CONSCIOUSNESS REFERS TO AN OBJECT.

Brentano himself proposes that no distinction shall be regarded as ultimate which is not founded on an irreducible difference in the mode in which consciousness refers to an object. Differences in the nature of the object are from this point of view irrelevant. Only the attitude or posture of consciousness towards objects is to be taken into account. Following this line of inquiry, he lays down a triple division, differing essentially from the Kantian. He distinguishes between presentation, judgment or belief, and interest or liking. In so far as the subject is merely aware of an object as an immediate content of consciousness, the object is said to be presented to it, and the mode in which it refers to the object is called *presentation*. If, in addition, it affirms or denies the object, this mode of reference is designated by the term *judgment*, or *belief*. If it also desires or has aversion for the object, then it is said to have an *interest* in it. Brentano fails to see any essential distinction between desiring an object or having an aversion for it, and being pleased with

it or displeased with it. Setting aside for the present the consideration of the novel features in this scheme, we shall examine the principle which supplies his point of departure. Brentano thinks that this principle is anticipated more or less imperfectly in a passage in Kant's treatise, *Ueber Philosophie ueberhaupt*, which may be paraphrased as follows: "Presentations may be simply referred to an object and to the unity of the consciousness of this object: *pro tanto* they belong to the cognitive faculty; again, they may be referred to an object as cause of its actual existence: *pro tanto* they belong to the faculty of desire; finally, they may not be referred to an object at all, they may merely exist in the subject, maintaining their own intrinsic nature; from this point of view they may be regarded in their relation to the feeling of pleasure, which is in no sense a cognition".

"Reference to an object" is here used as the principle of division of the faculties of the mind. Desire and cognition are distinguished from each other because they refer to an object in different ways; feeling is distinguished from both of them because it involves no objective reference at all. Nevertheless, there is a vital discrepancy between Kant's point of view and that of Brentano. They do not use the words "object" and "reference" in the same sense. Brentano's "object" is the same as Kant's "presentation". It is an appearance in consciousness. It is what Brentano would call a content (*Inhalt*) of presentation. The object of which Kant speaks is no content of presentation; it is that to which the content of presentation is referred; he does not merely say that in cognition and desire consciousness refers to an object; he says that it refers *presentations* to an object.

The extent and importance of this difference in the use of the term "object" will be best elucidated by comparing Brentano's account of the nature of a physical phenomenon

with Kant's teaching on the same point. Brentano asserts that physical phenomena may be legitimately identified with sensation, if by sensation we mean not mere presence in consciousness but the quality of what is presented. The work of science is, according to him, to account for the order in which sensations, in this application of the word, co-exist or succeed each other, assuming the agency of a quasi-spatial and quasi-temporal world, which is *not* phenomenal at all. Kant, on the contrary, draws a hard and fast line between the contents of perceptual consciousness which successively appear and disappear in the flow of our subjective experience, and the world of phenomena in space. It is quite true that, according to Kant, this world exists only as it appears to us, not as a thing in itself. It is qualified throughout by predicates derived from the content of our sensory presentations. But these sensory presentations as they emerge and disappear in the fleeting moments of our subjective experience are not themselves identical with the predicates derived from them,—the attributes of objects in space. Physical phenomena persist, co-exist, and succeed each other quite independently of our individual consciousness and its transient phases. Possibly Kant might have accepted Mill's definition of the phenomenal world of external things, as a system of permanent possibilities of sensation. But this definition would, in his view, only serve to place in a clearer light the essential distinction between our perceptions and physical phenomena. For the postulate on which it rests, as expressly formulated by Mill, is "that after having had an actual sensation we can conceive a possible sensation". But to conceive a possible sensation is to think about a sensation without actually experiencing it. Thus, even according to the sensational idealism of Mill, we must deny that the perceived object is a content of consciousness. According to this view, it is a group of permanent possibilities of sensation.

But a permanent possibility cannot be an actual experience. Take next the perception of a sensible quality as distinguished from a sensible thing. The distinction between sensation and object in this case has been well stated by Reid: "Pressing my hand with force against the table, I feel pain, and I feel the table to be hard. The pain is a sensation (experience) of the mind, and there is nothing that resembles it in the table. The hardness is in the table, and there is nothing resembling it in the mind. . . . I touch the table gently with my hand, and I feel it to be smooth, hard, and cold. These are qualities of the table perceived by touch; but I perceive them by means of a sensation which indicates them. This sensation not being painful, I commonly give no attention to it. It carries my thought immediately to the thing signified by it, and is itself forgot as if it had never been. But by repeating it, and turning my attention to it, and abstracting my thought from the thing signified by it, I find it to be merely a sensation, and that it has no similitude to the hardness, smoothness, or coldness of the table which are signified by it."¹ Reid exaggerates when he says that there is no similitude between the sensation and the sensible quality. But in order to make his statement correct we have only to add a limiting condition. It is true that there is no similitude between them in those attributes which cause us to apply the term sensation to one of them.

As we approach or recede from an object in space, *e.g.*, a tree, the magnitude of the image which it casts on the retina increases or diminishes. This involves different modifications of presentational consciousness. We may, if we choose, turn our attention to the content of these varying visual presentations: we then find that they form a series of magnitudes widely differing from each other, according to our varying

¹ *Works*, Hamilton's edition, vol. i., p. 310.

distance from the tree. But, in general, the visual magnitude, as such, passes unnoticed. It is merely experienced, not perceived. It serves to mediate the thought of the real magnitude of the physical object. The same visual magnitude may stand for different real magnitudes, and different visual magnitudes for the same real magnitude, according as the perceived distance of the object is greater or less.

We have not yet taken into account the case in which we think of a sensation as such. If it is under any conditions possible for the object of thought to be present in the consciousness of the thinker when he thinks of it, it ought to be possible in this case. If it is not possible in this case, it is difficult to see how it can be possible at all. If introspective knowledge is not immediate, then no knowledge is immediate. Now it will be found on examination that whenever we try to think of an immediate experience of our own, we can do so only by investing it with attributes and relations which are not themselves immediately experienced at the moment. For example, I may think of a momentary appearance in consciousness as an occurrence in my mental history, an incident in my experience. But neither my experience as a whole, nor the position and relations of any part within that whole, can be given as the content of momentary consciousness. The momentary consciousness is only one link in the series which constitutes my experience. We are able to "look before and after, and sigh for what is not," only because thought can refer to an object which is not present in consciousness. Again, I may think of the content present in consciousness, abstracted from the fact of its presentation. In this case also I am obviously not thinking of the momentary experience as such at the moment at which it is experienced. The presented content is regarded as something which remains identical through the fleeting moments of its appearance.

In this last instance the content is generalised by thought. All generalisation in like manner involves an objective reference which transcends the momentary consciousness. What is essential to a general concept, or a universal judgment, is its indefinite applicability. All generalisation implies the thought of an unlimited series of particular instances. But it is needless to point out that from the very nature of an infinite series it cannot be a present modification of consciousness.

We may, I think, confidently affirm that the object of thought is never a content of our finite¹ consciousness. If the object exists at all in the sense in which the thinker refers to it, *i.e.*, means or intends it, it exists independently of this consciousness, and the same is true, *mutatis mutandis*, of its non-existence. Indeed, a special argument may be urged for the case of non-existence. If an object is to be identified with the special modification of consciousness whereby we think it, we could never think of what does not actually exist; for the specific modification of our consciousness, whereby we think of the non-existent, as such, must always itself have existence. Similarly with objects which are recognised, not merely as fictitious, but as absurd; I can think of a round square, and in so doing recognise that I am thinking of an absurdity. But what is it that is absurd? Not the thought itself, as a modification of my consciousness: for this actually exists, and cannot therefore possess the internal absurdity which excludes existence. What is regarded as absurd and non-existent is the object. The felt failure to combine round and square in one image is itself part of that content of consciousness through which the absurdity of the object is presented. Throughout the whole of this discussion the word "object" is used as correlative with thought;

¹ I say "finite" consciousness to avoid collision with the Hegelian doctrine that man is infinite as well as finite—that the universe thinks itself in him. I am far from rejecting this doctrine. But in psychology we can only take account of the finite consciousness.

its actual existence or non-existence is a matter of indifference. The distinction here maintained would hold good as much for an uncompromising adherent of solipsism as for an advocate of natural realism. The point is, that the object as we mean or intend it, cannot be a modification of our own consciousness at the time we mean or intend it. It may be said that the object must always exist as such; but the existence of the object as such is precisely the same as the existence of the thought of it. In this sense the thought and the object may be called two aspects of the same fact; but the existence of the object as the thinker himself views it can never be identified with the mere existence of the thought of it. The thought of it is a passing modification of consciousness; the object, as it is apprehended in this transient phase of experience, is always distinct in nature from the subjective experience itself. From this point of view, the statement that it exists merely *quâ* object, or, in other words, that it exists only in so far as it is thought of, is equivalent to the statement that it does not exist at all. The position of the solipsist is, that all objects other than those revealed to introspection are mere thoughts. But the possibility of regarding any object as a mere thought involves a reference to objects which are not regarded as merely identical with the thoughts that think them. Belief, desire, aversion, volition, enjoyment, grief, regret, etc., are all special modes of reference to an object. They must all be regarded as specific determinations of thought. We have now to confront the problem of classifying the ultimate mental functions according to this principle of division.

§ 3. ANALYSIS OF COGNITION AND DEFINITION OF TERMS.

In the process by which we take cognisance of an object two constituents are distinguishable. (1) A thought-reference

to something which, as the thinker means or intends it, is not a present modification of his individual consciousness. (2) A more or less specific modification of his individual consciousness, which defines and determines the direction of thought to this or that special object; this special mode of subjective experience we may call a *presentation*. We may say, if we choose, that the object itself is *presented*, but we must not say that it is a presentation; and when we say that it is presented, it is better to say that it is presented *to* consciousness, than that it is presented *in* consciousness. In the perception of a tree the reference to an object is circumscribed and directed by a plexus of visual and other presentations. The object thought of is thereby made determinate. It is a material thing, not a mental occurrence, a tree and not a stone, an oak and not an elm. The most general words for the total experience constituted by thought-reference and specifying presentation, are apprehension, cognisance, awareness, and discernment. Perception, idea, and conception are terms signifying special modes of apprehension. Presentations become perceptions, ideas, and conceptions, only so far as they fulfil the function of making thought discriminative. It should be noted that one apprehension may be part of the specifying content of another, so that the distinction between apprehension and presentation is relative, not absolute. In trying to recall a name, I must think of the name before it actually occurs to my mind. I must think of it as something which is not a content of consciousness, but which may possibly come to be so in consequence of my efforts. I think of it as connected with certain persons, places, things, and events. Thus the ideas of these persons, places, etc., constitute the specifying content in my idea of the name, before I recall it.

The next question which confronts us is this: Are we, in our ultimate division of mental functions, to distinguish between, (1) Pure thought, as mere reference to an object; (2)

The discrimination of special objects? The question formulated in this way must be answered in the negative. The distinction is futile and meaningless. All processes of thought are, *eo ipso*, processes of discrimination. We cannot think of a thing without in some way discerning it. It is impossible to attach any meaning to such a combination of words as "empty thought".

But behind this question lies another of far-reaching significance. Thought is discriminative only so far as it has *presentation* for its vehicle. Ought we not to recognise a fundamental distinction between discriminative thinking, and the manifold contents of consciousness which make such discrimination possible? The answer to this question depends upon the possibility or impossibility of some kind of severance between the mere existence of presentations as immediate experiences on the one hand and their objective reference on the other. It is easy to show that there is by no means a complete coincidence between the existence of presentations and their significance for thought. They may exist as possible material for discriminative thinking without being actually utilised to the full extent in which they are susceptible of being utilised. At this moment I am thinking about psychological topics. I receive at the same time a multitude of diversified impressions from surrounding things which certainly enter into my total experience. But if I refer them to an object at all, I do so in a very indeterminate way. My thought-discrimination is very far from keeping pace with the differentiation of the sensory data as immediately experienced. To quote Abraham Tucker: "We may see leaves falling from the trees, birds flying in the air, or cattle grazing upon the ground, without affirming, or denying, or thinking anything concerning them; and yet, perhaps, . . . upon being asked a minute afterwards we could remember what we had seen. A man may have beheld a field from his window a hundred times

without ever observing whether it were square or pentangular, and yet the figure was exhibited to his view every time he looked upon it.”¹ In searching for an object we may overlook it, though it lies directly before our eyes. A medical man “is looking for a particular drug and cannot find it, and perhaps looks at every bottle in the dispensary without being able to see it. A few days afterwards he will find it in a position where he *must* have looked at it, as he knows that he examined every bottle on that particular shelf.”² A single sweep of the eye takes in an indefinite multitude of sensory details. But to make each of these severally significant for thought would require a long series of successive acts of attention. Of course, the total impression which they collectively constitute may be significant, as in our first glance at a landscape before we begin to observe its component parts. The essential point is the antithesis between the detailed determinateness of presentation and the comparative indeterminateness of discriminative thinking. The relative independence of presentation is perhaps even more strikingly illustrated by our organic sensations. These appear to be constantly present in every moment of waking life—perhaps even in sleep. But, for the most part, they enter our trains of thought only in the vaguest way, if at all. Occasionally we say “I feel well,” or “I feel ill,” or “I feel tired,” or “I feel bright,” or “I feel dull”. But for the most part we do not take any definite note of our condition. When we do so, we are always aware, if we reflect on the point, that the sensations which determine our judgment are not created by it, but are prior to it.

The same point may be illustrated by that process of generalisation in which we have in our consciousness what Locke calls a “particular image with a universal signifi-

¹ *Light of Nature*, vol. i., p. 274.

² Edridge-Green on *Memory*, p. 129.

tion". The particular image may be that of a plane triangle, drawn in red ink on a white background ; the lengths of its sides may be three, four, and five inches, respectively ; either its vertex or its base may be uppermost, or it may occupy some intermediate position. Now what we are thinking of may be the equality of the angles of any triangle to two right angles. In that case the various details of the presented triangle which we have enumerated are irrelevant. They are without ideal significance. On this point I may quote Mr. Bradley : "We have ideas of redness, of a foul smell, of a horse, and of death ; and as we call them up, more or less distinctly, there is a kind of redness, a sort of offensiveness, some image of a horse, and some appearance of mortality, which rises before us. And should we be asked : Are roses red ? Has coal gas a foul smell ? Is that white beast a horse ? Is it true that he is dead ?—we should answer, Yes." But the redness present in consciousness "may have been that of a lobster, the smell that of castor oil ; the imaged horse may have been a black horse, and death perhaps a withered flower".¹ These presentations contain much that is irrelevant to the idea. Ideal significance belongs only to that part of their content which determines the thought-reference.

Presentation considered as having an existence relatively independent of thought, may be called Sentience, or *anoetic* consciousness. Thought and sentience are fundamentally distinct mental functions.

§ 4. THE CONCEPTION OF A PURELY ANOETIC CONSCIOUSNESS.

The question may be raised whether a sentient being could exist entirely devoid of thought—a creature for which the meaning of the verb to be would have no existence. May

¹ *Principles of Logic*, p. 9.

not the oyster, or, at any rate, the amœba, have such a consciousness, a mere immediate experience, without any reference to an object? For my part, I can only reply that I do not know and dare not guess.

But the problematic conception of such a being is in some respects instructive. In the first place, it would seem that in regard to it the antithesis of subject and object would be meaningless. The relation of content of consciousness to consciousness in general would be only a relation of whole to part—of a particular mode of sentience to the total sentience. In such a case the words of Reid would apply without reservation: "There is no difference between the sensation and the feeling of it—they are one and the same thing. . . . In sensation there is no object distinct from the act of the mind by which it is felt." ¹

In the second place, it does not appear possible to pass from mere sentience to thought by any process of differentiation or complication. We should only obtain in this way a more complex and differentiated sentience. Objective reference supervening on purely anoetic experience would be a completely new psychical fact. It is the more necessary to note this, as attempts have been made to explain the emergence of the distinction between subject and object out of "mere feeling," by supposing special constituents of the total sentience to acquire salience and prominence. This can only mean that special sensations are intensified out of proportion to the rest. But an intensified sensation is merely a sensation intensified, and not, *eo ipso*, the perception of an object.

¹ *Works*, Hamilton's edition, vol. i., p. 310.

CHAPTER II.

ANALYSIS OF PRESENTATIONS.

§ 1. STATEMENT OF THE PROBLEM.

WHAT is meant by *analysis* of presentations? To analyse is to assign the component elements of a complex. The analysis of presentations must therefore consist in distinguishing within a total presentation the partial presentations which enter into its composition. But here we are confronted by a serious difficulty. If the work of analysis is to be valid, it must be a work of discovery, not of creation. It must find, not make, the constituents into which it resolves the object analysed. Hydrogen and oxygen are in some way components of water quite independently of any one's knowledge of chemistry. Similarly, in every other instance, a distinction is presupposed between the real constitution of things and the work of the mind which knows them. Now in the case of presentations it would seem that this condition cannot possibly be fulfilled. It would seem that in their case appearance is reality, and reality is appearance. Their immediate existence as transient contents of consciousness is all the existence they have. Hence we cannot, without falsifying their nature, attribute to them as a result of analytic examination any components which have not constituted part of their content at the moment of their appearance in consciousness.

It is true that by concentration of attention we can bring into distinctness what was in the first instance undiscerned.

It is also true that common language and common thought ordinarily regard these emergent details as having had some sort of previous existence. We say, not that we have brought into existence something new, but that we have made clear and distinct what was previously obscure and indistinct. Obscurity and distinctness are regarded as analogous to the different appearances presented by the same object in a dim and a strong light respectively. It seems to be assumed that, just as variations in the strength of the illumination by which we see a thing cause the appearance and disappearance of detail, of colouring, and outline, so variations in degree of attention cause partial presentations to become discernible in the whole which they constitute. This illustration is, however, utterly misleading, if we are considering presentations merely as appearances in consciousness. The physical object has a nature of its own independent of the light in which we see it. Increase in the strength of illumination reveals features which exist in the thing itself whether we see them or not. But it is quite otherwise with presentations, as such. As such, they are appearances in consciousness and nothing else whatever. As directly applied to them, the predicates, *obscure* and *distinct*, indicate, not modes of their appearance as distinguished from their reality, but attributes of the reality itself, because in their case appearance is reality, and *vice versa*.

It may be urged that presence in consciousness is not necessarily identical with being discriminated and identified, and that it may be quite possible to identify and discriminate presentations which were initially unidentified and undiscriminated. We of course admit and maintain the distinction between discriminated and undiscriminated presentational differences. But there is good reason for denying that what is discriminated can as an immediate content of consciousness be the same with what is undiscriminated. The difference

is as fatal to identification as is the difference between blue and green or heat and cold.

It seems, then, that the analysis of presentations is an impossibility in so far as it involves distinctions which did not exist for consciousness in the presentation analysed at the moment of its actual appearance. But it may still seem possible to *describe* although it is impossible in the proper sense to *analyse*. It may be thought that by simply observing and recording what actually belongs to the content of a presentation, without any attempt to make the obscure into the distinct, we shall escape from our difficulties and proceed upon a safe basis. A little consideration will show, however, that this course is impracticable. It is impossible merely to describe without in some measure defining and distinguishing. To state in words the content of a presentation is to bring this content in its several parts and aspects under the concepts for which the words stand. It cannot therefore be done without introducing a conceptual precision and distinctness which does not properly belong to the original presentation. But even if we could admit the possibility of simply recording the content of consciousness at any moment without any inaccuracy of this kind, or at any rate with only a negligible amount of such inaccuracy, we should not by this admission obtain an adequate basis for psychological inquiry. The most simple and cautious treatment of the facts which are usually referred to under the head "association," presupposes an analysis which conspicuously transgresses the limits here laid down. Certain muscular sensations accompanying a certain convergence of the eyes suggest that an object is situated at a certain distance. This is a statement based on psychological analysis. The muscular sensations which indicate the distance of the object are not usually discriminated by the percipient in the moment of perception. They are merged

without distinction in the total experience which we call a perception of distance. It is only psychological reflection which signalises them as separate factors in the process. But we have seen that a distinguished presentation cannot be the same with one that is undistinguished. It follows that the sensations of which the analytic psychologist speaks do not exist in the consciousness of the subject whose experience he analyses. Take another instance. A picture suggests the scene depicted. It does so owing to certain features in which it resembles this scene. But it requires an effort of reflection to determine what these common features are, by which the art of the painter produces its effect. The arrangements of colour, of light and shade, of perspective, etc., may operate immediately on the mind of the spectator, without any discernment on his part of the means by which the artistic illusion is brought about. Psychological analysis assigns them as the primary data on which the associative revivals depend. But if the distinction drawn by such analysis were present to the mind of a person looking at the picture, they would hinder the illusion instead of helping it.

It would seem, then, that in the strict application of the word *presentation*, the phrase "analysis of presentation" either stands for an illusion, or, if it expresses a reality, it expresses it in erroneous terms. What is analysed cannot be the mere appearance in consciousness. The same content of presentation cannot have different degrees of distinctness. Difference in distinctness is a difference in the content itself, not merely in our knowledge of it. The analysis, which is commonly described as "analysis of presentations," must either be a logical absurdity, or it must be in reality concerned with objects which are not immediately present in consciousness.

§ 2. IS SO-CALLED "ANALYSIS OF PRESENTATIONS"
ANALYSIS OF THE *THING* COGNISED BY MEANS OF
THEM?

Perhaps the most obvious suggestion is that the source of the fallacy lies in a confusion between ideas and the things of which they are ideas. This is the view taken by Professor James. Like us, though on different, and, I think, partly fallacious grounds, he denies that when, by an effort of attention, we transform an indistinct into a distinct presentation, the features distinguished by consciousness in the latter were precontained as real, though undiscerned, components in the former. Thus, according to James, it is inaccurate to say, with Stumpf, that by mental analysis we can "clearly perceive that the content of our sensation of oil of peppermint is partly a sensation of taste and partly one of temperature". He rightly refuses to admit that an original indistinct content of sensation can be legitimately identified with a subsequent distinct one. The explanation which he proposes is that "we perceive the objective fact, known to us as the peppermint taste, to contain those other objective facts known as aromatic or sapid quality, and coldness, respectively".¹ In like manner he would resolve all so-called analysis of presentations into analysis of the objective facts, which are known by means of them. This view is advanced by Professor James with dogmatic emphasis. But he does not support it on positive grounds. He seems to consider that it is adequately established by a refutation of the common doctrine, which I agree with him in rejecting. It apparently does not occur to him that there may be another alternative. It is at this point that we cease to be able to follow him. His doctrine, if pushed to its logical consequences, would involve the impossibility, not merely of the "analysis of presentation," but of all analysis properly so called. It simply means that

¹ *Psychology*, vol. i., p. 523, note.

what has hitherto been regarded by psychologists as definition or description of mental facts, is, in truth, definition and description of physical facts. Before admitting the validity of such a view, we ought evidently to examine it very carefully.

Let us consider more closely the example just referred to. By an effort of attention we obtain a more distinct idea of the taste of the peppermint. This means, according to James, that we obtain more definite knowledge concerning a quality of a material thing; and his statement of the case is so far indisputably correct. But another question which he has not touched remains to be considered. The psychological interest, if it exists at all, must lie, not in the resulting cognition of physical fact, but in the process by which it is attained. Now this process is admitted to be purely mental. It is merely a concentration of attention. In so far as other factors are supposed to come into play, the case ceases to be relevant. No one would claim, as an example of *psychological* analysis, the minute scrutiny of the contour of an object effected by successively scanning its parts with the eye, or by passing the hand over it. We are not concerned with cases in which we adjust our sense-organs to receive new modes of stimulation; we are concerned only with those cases in which by mental scrutiny we obtain new results from a pre-existing mode of stimulation. In the present instance, the analysis of the taste of peppermint had never been made by me until it was suggested by James. I had no peppermint at hand, but I could perform the act of analysis by appealing to my memory. The whole operation falls within the circle of mental occurrences. The peppermint itself as a physical thing with its physical properties does not enter directly into the process as an operative factor. The analysis of the physical fact presupposes as its antecedent condition some sort of analysis of our apprehension of it, or of our experience in relation to it. We have to determine wherein this analytic process consists.

§ 3. ANALYSIS OF ACTUAL EXPERIENCE.

Under this head we have to examine the cases in which we come to discriminate differences which already pre-exist as modes of previous experience. Examples of this have been given in discussing the distinction between noetic and anoetic consciousness, so that it is perhaps unnecessary to supply special illustration here. The transfusion of sentience with thought is a gradual process, and one of its most prominent forms is the progress in delicacy of discrimination. The trained artist can perceive a multitude of fine differences in colouring, which escape ordinary observation. This is due purely to education of attention, and not to any superiority in his mere sensibility to colour differences. The failure of the layman to discern the *nuances* which are plain to the artist, is not traceable to anything in the nature of a comparative colour-blindness, but rather to a comparative deficiency in the power of analysis. Perhaps an even more striking illustration is supplied by the epicure's minute discrimination of the components of flavours. A highly cultured smoker may spend hours in describing the delicate variety of experiences which a single superb cigar gives him, while ordinary mortals can only look on in amazement and wonder what he is talking about. The same holds good of the connoisseur of wines. Stumpf's instance of the peppermint is also in point. The passage in which it occurs is worth quoting here: "Of co-existent sensations, there are always a large number undiscriminated in consciousness, or (if one prefer to call what is undiscriminated unconscious) in the soul. They are, however, not fused into a simple quality. When, on entering a room, we receive sensations of odour and warmth together, without expressly attending to either, the two qualities of sensation are not, as it were, an entirely new simple quality, which first at the moment in which

attention analytically steps in *changes into* smell and warmth. . . . In such cases, we find ourselves in presence of an indefinable, unnamable total of feeling. And when, after successfully analysing this total, we call it back to memory, as it was in its unanalysed state, and compare it with the elements we have found, the latter (as it seems to me) may be recognised as real parts contained in the former, and the former seen to be their sum. So, for example, when we clearly perceive that the content of our sensation of oil of peppermint is partly a sensation of taste and partly one of temperature.”¹

As we have seen, Professor James rejects this view, and holds that differences cannot be experienced unless they are distinguished. But he does not seem to be very consistent with himself on this point. An example of this inconsistency is supplied in his discussion of association by similarity. Similarity, in so far as it conditions the suggestion of one presentation by another, is, according to James, always a partial identity. Now, he strongly emphasises our inability in many instances to discover by analysis wherein the identical character consists which forms the pivot of the “similar association”: “If I hear a friend describe a certain family as having *blotting-paper* voices, the image, though immediately felt to be apposite, baffles the utmost powers of analysis”. In such instances “we must suppose that there is an identical portion in the similar objects, and that its brain-tract is energetically operative, without, however, being sufficiently isolable in its activity as to stand out *per se*, and form the condition of a distinctly discriminated ‘abstract idea’. We cannot, even by careful search, see the bridge over which we passed from the heart of one representation to that of the next.”² Professor James can hardly hold that the identical

¹ *Tonpsychologie*, i., 107, as translated by Professor James, *Psychology*, vol. i., pp. 522-523.

² *Psychology*, vol. i., p. 582.

character is in such cases unexperienced, for on this supposition the felt similarity would be inexplicable. The identical component must be experienced, although it is not discriminated. Again, in discussing the improvement by practice of tactile discrimination, by which we come to perceive double where we have previously perceived only single contact, Professor James says: "As soon as the *image of the doubleness*, as it is felt in the more discriminative places, gets lodged in our memory, it helps us to find its like in places where otherwise we might have missed it".¹ "A dim doubleness grows clearer by being assimilated to the image of a distincter doubleness."² What is meant by the "dim doubleness," unless it be a sensory difference, which is experienced without being discriminated? Indeed, Professor James's whole account of the gradual sub-division of an original vague experience of extensiveness into definitely distinguishable parts, seems to involve the gradual discrimination of previously undiscriminated experience. Apart from such a conception, it is to me utterly unintelligible.

The theoretical objection against the possibility of psychological analysis in this sense is that what is discriminated cannot as an immediate content of consciousness be the same with what is undiscriminated. This is of course true, but is it relevant? The underlying assumption that alone makes it appear relevant is that in the analysis of presentations we identify the distinguished content as such with the undistinguished content as such. Now this assumption appears to be utterly baseless. It is at bottom a case of the common confusion between the psychical act of cognition and the object cognised. What is required for accurate knowledge is not that the distinct presentation which arises in the process of analysis should be identical with the indistinct presentation which is analysed, but only that it should adequately repre-

¹ *Psychology*, vol. i., p. 514.

² *Ibid.*, p. 515.

sent it. All that is necessary for this is that each analytic distinction should correspond to an undistinguished difference in the original experience. In this way it is possible that we may come to know the original experience by the very same process which transforms and modifies it, as we may come to know the composition of water by the very process which destroys its existence as water and leaves instead two separate gases.

§ 4. ANALYSIS OF PSYCHICAL DISPOSITIONS.

The above explanation does not cover all the cases in which we may be said to transform an obscure presentation into a distinct one by a purely mental process so as to obtain analytic knowledge of the contents of our own mind. In some cases the differences which emerge under scrutiny do not correspond to, or constitute the analysis of, a pre-existing experience. This happens mainly in the case of ideas, but it may perhaps also occur in the sphere of sense-perception, though this is very dubious. We may take as a problematic illustration the analysis of a note into its overtones, according to Dr. Lipps's view of this process.¹ Dr. Lipps holds that the unanalysed note is a simple experience. The overtones which analysis discovers are, according to him, not in any sense pre-contained in the original presentation. The analysis itself brings them into existence, not only as distinguished differences, but as felt differences. This result, however, is purely a consequence of the mental process of attending. It does not involve any change in the nature of the external stimulation. Supposing this account to be correct, is it legitimate to call the process an analysis of the original auditory presentation? Dr. Lipps holds that we may do so without serious impropriety, if we are careful to explain exactly what we mean. According to him, what is analysed is in strictness not an actual experience, but

¹ *Philosophische Monatshefte*, 1892, pp. 547-591.

an unconsciously complex mental disposition corresponding to a complex physiological modification of the brain substance. It is because this disposition possesses a certain complexity of nature that under the scrutiny of analytic attention the auditory experience corresponding to it becomes complex. To say that we analyse this auditory experience is merely a compendious way of saying that we analyse the unexperienced complexity of the psycho-physical disposition with which it is connected. According to Dr. Lipps, this is the only sense in which analysis of presentations is possible. Now, it must be admitted that this position is greatly superior to that of Professor James, inasmuch as it allows ample scope for the purely mental analysis of purely mental facts. Indeed, those of our readers who may have failed to be convinced of the validity of our explanation of the analysis of actual experience, may yet, if they adhere to the standpoint of Lipps, keep in touch with much that we shall have to say on this subject, which would be unintelligible from the standpoint of James. From our point of view, however, it seems advisable to draw a distinction between analysis of actual experience, as expounded in the previous sections, and analysis of psychical dispositions. Only the first ought to be called an analysis of presentations.

When we turn from sense-perception to ideas and conceptions, we find the analysis of dispositions to be a process of very common occurrence. It takes place whenever we examine what we mean by a word, or what we know about any given point, and whenever we strive to transform a vague memory into a clear remembrance. Let us examine carefully what takes place when, under a sustained effort of purposely analytic attention to a comparatively vague memory image, or train of such images, or to a logical system of abstract ideas, special features or aspects successively or simultaneously emerge into clear consciousness.

Note first that though it lies in our power to institute the analytic scrutiny or to refrain from it, to continue it or to discontinue it, and in some degree to determine its direction or point of application, yet when once we do concentrate attention the result does not depend on us. We discover but we do not create. It is we that distinguish; but *what* we distinguish is fixed for us, not by us. In this respect we are obviously at the mercy of some condition distinct from our own subjective activity. But this condition is not in any sense external to the individual mind. It is an immanent factor in mental process, not an agency determining it from without.

This view of the matter is necessary, not only from the standpoint of the psychologist, but also from that of ordinary experience. The very meaning of the statement that we have made an idea distinct by an effort of attention is that the emergent differences are not created purely by the act of attending, but that they have their source in an independent condition upon which attention acts. Otherwise we could not in any manner or degree separate the distinctions due to a successful effort of analysis from the irrelevant details which may incidentally obtrude themselves in the field of consciousness during the process. To say that our analytic scrutiny has been successful is tantamount to saying that the nature of the differences depends on the mental disposition, and only the fact of their being distinguished depends on the act of attending. This does not imply that the differences exist before they are distinguished, unless indeed we take their existence to be synonymous with the "permanent possibility" of their being distinguished. The exact import of the statement is merely that the specific nature of the differences as they appear in clear consciousness is determined by a condition other than the

subjective process of fixing attention, and that this condition is itself something mental,—a mental disposition,—though it falls outside the sphere of consciousness. Further exposition of the nature of dispositions must be postponed until we come to treat of mental processes.

CHAPTER III.

THE APPREHENSION OF FORM.

§ 1. INTRODUCTORY.

EVERY whole involves (1) component parts, and (2) the form of combination in which these parts are united. The nature of the components varies in different cases, and so does their mode of grouping. We have now to consider the following questions: How far is the apprehension of a certain form of combination distinct from and independent of the apprehension of its constituent parts? and, conversely: How far is the apprehension of the components of a certain kind of whole distinct from and independent of the apprehension of its form of synthesis?¹ It should be noted that we do not propose to investigate the relation of combination to elements combined in the actual constitution of an objective whole; our problem concerns only the relation of *apprehension* of form to *apprehension* of matter. Even if an objective whole

¹Chr. Ehrenfels, in an article, "Ueber Gestaltqualitäten" (*Vierteljahrsschrift f. wissenschaftliche Philosophie*, 1890, Heft 3, Seit. 249-292), has discussed certain aspects of this question with great fulness and precision. What I designate as form or plan of combination he calls a "shape-quality". This use of words sounds strange in German, and it would certainly appear very uncouth in English. I have preferred to say "form" instead of "shape". It is advisable however to point out that my application of the word coincides rather with ordinary usage than with the technical usage of Kant. *Form* in the text does not stand for the universal and necessary as opposed to the particular and contingent. Forms of combination may be as concrete and particular as the elements combined.

is nothing more than the sum of its parts taken collectively, it does not follow that our cognisance of this whole is to be identified with our cognisance of all its parts. In the next place it must be understood that we are not here concerned with mental combination. If the apprehension of form is in any sense distinct and independent of the apprehension of matter, it is itself not a form of mental combination, but a material constituent of consciousness, comparable in this respect with the perception of red or blue. In the sequel we shall have to inquire how, in mental process, the apprehension of the form of a whole conditions and is conditioned by that of its constituent parts. This will be in a strict sense an inquiry into mental form of combination.

Our present*problem is in many ways an important one to the psychologist. It prepares the way for the investigation of the part played by form-apprehension in the processes of association, conflict, apperception, and so on. It has also an essential bearing on the question how far mental activity can properly be said to be creative as well as merely constructive. For if the apprehension of a new form of combination be really a new and relatively independent content of consciousness, the mind in acquiring it may properly be said, in the words of Locke, to make for itself a "new simple idea". The general problem resolves itself on examination into a series of distinct questions, which will supply headings for separate sections.

§ 2. CAN THE FORM OF COMBINATION REMAIN THE SAME OR RELATIVELY THE SAME, WHILE THE CONSTITUENTS VARY? ¹

It is not difficult to show that this question must be answered

¹ In the present chapter, for the sake of compactness, "form of combination" is used as equivalent to "apprehension of combination," and "constituents" as equivalent to "apprehension of constituents".

in the affirmative. The same form of combination admits of transference to different sets of components. We must, however, be careful to distinguish two kinds of transference, only one of which is really relevant. The transferability of a form of connection may depend on its own abstract generality. For example, the term "closed figure" implies an abstract and general manner of combination, which receives specific determination in the various kinds of closed figures,—triangle, ellipse, polygon, etc. The specialised forms of connection require a corresponding specification of the nature of the parts connected. Thus the constituent parts of a circle cannot collectively coincide with those of a triangle. The abstract and general form, "closed figure," is transferable to these various groups of components. But in each the general form itself, *quâ* form, receives specific modification. In other words, so far as the transferability of the form depends on its generality, it varies concomitantly with the matter. Such cases of transference have no bearing on the question before us. But it is easy to point out abundance of instances in which the constituents of a whole may vary without any corresponding variation in their plan of combination. Even though every single note of a melody is changed, it may yet remain as a whole the same melody. A metrical arrangement of syllables may remain the same, although the syllables themselves are exchanged for others. Music and dancing may have an identical rhythm. The shape of the letter "S" may remain identically the same, whether it is painted in gold on a green ground or in black on a white ground. Triangles, though they differ in the length of their sides and in area, may yet be geometrically similar. The series connecting blue and green through intermediate blue-greens and green-blues is identical in form with the series connecting red and blue through intermediate purples. In form, the process of blushing corresponds to the process of

growing pale. The form of a mathematical progression may remain the same though the absolute values of its terms are changed. In such instances the conditions of community of form amid diversity of matter are: (1) That the components of the different wholes which agree in having the same form shall also agree in having a certain generic nature.* A melody can be composed only of tones; it cannot be composed of mere noises or of colours or of smells. But this common nature, which alone renders various matters susceptible of the same form, may be highly abstract and general; and the more abstract and general it is, the wider is the range within which the form is applicable. Rhythm is a form which is transferable to very heterogeneous kinds of matter. The regular recurrence at fixed intervals in which rhythm consists would seem to be possible for every kind of presented content, including organic sensations. The most important point to bear in mind in this connection is that the abstract indeterminateness of the common character through which various matters are susceptible of the same form involves no corresponding indeterminateness in the form itself, which may indeed be perfectly definite. (2) The common nature which we may call the material basis of combination must receive specification in every particular instance of the union of matter and form. This specification, so far as it really affects the material basis as such, and not extrinsic circumstances, involves a mutual adaptation or adjustment of the special character of each component to the special characters of the rest. Thus, in a melody of a given form, if the absolute pitch of some of the notes is given, the pitch of the other notes is thereby determined. Similarly, by fixing the value of any term of a mathematical progression we fix the value of the rest. The same rhythm may be found in a series of sounds, and in a series of movements, but if the series begins as a sound series, it must be continued as such.

The instances adduced so far are, as nearly as possible, instances of identity of form amid diversity of matter. But there is another class of cases in which we should say that the form is similar and correspondent rather than identical. Among these cases there are some in which the presented wholes are so heterogeneous in respect of their material filling in, that it seems scarcely possible to assign any affinity between them except the formal one. Ample illustration is supplied by poetic metaphor and allegory. Take for instance the couplet in *Hudibras* :—

Rhymes the rudders are of verses,
By which, like ships, they steer their courses.

Here the point lies in the contrast between the correspondency of form of combination and the extremely heterogeneous nature of the elements combined. It is this which arrests and detains the mind. Thomas Brown quotes from the same poem the lines in which honour is compared to Prince Rupert's drop :—

Honour is like that glassy bubble,
That finds philosophers such trouble,
Whose least part crack'd, the whole doth fly,
And wits are crack'd to find out why.

An example of a different kind is found in the diagrammatic representation of the qualitative relations of colours in the colour triangle. The description of mental phenomena in physical terms derives whatever appropriateness it may possess from this source. Thus such a phrase as "the balance of motives" can only be justified by reference to a correspondence between the relation of "weights" and the relation of "motives".

The general answer to this question is that the form of a whole may remain the same while the parts vary; further,

the variation is of such a nature as to exhibit the relative distinctness and independence of the form of composition on the one hand and the sum of the components on the other.

If a complex whole is nothing but the sum of its component parts, any two such complexes must resemble each other so far and only so far as their components resemble each other. But in point of fact this is not so. As we have seen, a melody may remain the same, though all its notes are changed in pitch. So far is the identification of melodies from being dependent on the identification of the notes composing them, that it is not unusual to reproduce a melody in a certain key in order to recall to mind the absolute pitch of a note. From such considerations it follows that the apprehension of a complex whole does not entirely consist in the apprehension of its elements. Besides this, and distinct from it, there is an apprehension of their specific plan of combination.¹

§ 3. IS IT POSSIBLE TO APPREHEND ALL THE COMPONENTS OF A WHOLE WITHOUT APPREHENDING THEIR MODE OF CONNECTION?

This question must also receive an affirmative answer. It is one thing to apprehend simultaneously the parts of a whole: it is another thing to apprehend the plan of their union. Of course, whatever items are simultaneously attended to, are apprehended as belonging to some kind of totality. But the form of connection which is actually apprehended need not be the only form of connection of which these items are capable. According to Stumpf, we may be aware of two notes differing in pitch, and we may be aware that

¹ Those who think an alternative hypothesis possible may consult Meinong's article "Zur Psychologie der Komplexionen und Relationen" (*Zeitschrift f. Psychologie und Physiologie der Sinnesorgane*, 1891, Seit. 248 ff.).

they do so differ, without observing which is higher than the other. I may be familiar with the appearance of the leaves of a tree without noticing the principle of their arrangement. Even the most attentive scrutiny may fail to discern a plan of combination, either because the whole is too complicated or because it belongs to an unfamiliar type. A special difficulty arises where the parts of one whole *A* are included in another *B*, though *A* itself is no part of *B*. A good example is supplied by the well-known puzzle pictures. In these a certain group of objects is depicted, and we are called upon to discover within the picture a new figure not included in this group. This can only be done by disengaging its several components from their obvious connections in the original drawing. When by a series of tentative efforts we have succeeded in gathering together the *disjecta membra*, so as to concentrate attention on them separately, the plan of inter-connection immediately emerges into clear consciousness, and we wonder how we could ever have missed it. The work of the mind in such cases is comparable to that of the sculptor who brings to light the form of a statue by removing with his chisel the irrelevant matter by which it is overlaid and concealed. It will be seen that in answering this question we have by implication answered another: Can the same constituents be variously combined so as to enter into the composition of different wholes? We do not wish to imply that the same elements may enter into different combinations without themselves undergoing modifications. An element which is apprehended first as part of one whole, and then as part of another, is presented in two different points of view, and so far suffers transformation. But this is not an admission which weakens the case for the distinctness of the apprehension of form and the apprehension of matter. For the difference in the point of view under which the same element is regarded in different combinations originates in and

is pre-conditioned by difference in the presented form of combination.¹

§ 4. CAN THE FORM OF A WHOLE BE APPREHENDED WITHOUT APPREHENSION OF THE PARTS?

The answer to this last question must be a decided negative. Where there are no parts there can be no combination of parts either in fact or for thought, and where there is no combination there can be no form of combination. Only in Wonderland can the grin be divorced from the cat. And yet the question is not, as we shall presently see, altogether a foolish one.

§ 5. ON RELATIONS.

The term Relation is not merely a synonym for such expressions as Form or Mode of Synthesis. The characteristic mark of relationship is that it presupposes definitely discriminated objects. These objects are said to be the terms of the relation; and it is said to be *between* them. For its apprehension, it is necessary that the related terms should be simultaneously discriminated. This is usually effected by a preparatory process by which attention passes from one to the other and back again, until both are clearly grasped. It is true that, whenever there is a relation, the terms related must be presented as parts of some kind of whole, and that this whole must be characterised by some special form of

¹ In this connection we may refer to a curious case of aphasia, as reported by Dr. R. Sommer ("Zur Psychologie der cerebralen Schreib- und Lesestörungen," *Zeitschrift für Psychologie und Physiologie der Sinnesorgane*, Bd. v., Heft 5, Seit. 308 ff.). Sommer's patient could, for instance, spell the word *Kind* aloud; but he could not utter it; he did not even substitute for it a combination of the sound of the names of the German letters, i.e., *Ka, i, en, de*. He said not *Kaiende*, but *Degen*. He said *Dem* instead of *Hand*, which differs very little in sound from the words formed by combining the names of the letters *ha, en, de*.

combination. But relations are of part to part within the whole ; whereas the form of combination constitutes the unity of the whole as such. Thus relation and synthetic unity will coincide only in cases where the terms related are of themselves sufficient to constitute a definite whole. This happens in the case of simple judgments of likeness and unlikeness. When we say that one colour resembles another, it would seem that the resemblance is at once relation and the synthetic union whereby the colours constitute a presented whole. Even in this case it is possible to make a distinction. There are two relations—that of colour *A* to colour *B*, and that of colour *B* to colour *A* ; but there is only one form of combination in which both these relations are merged.

In general, the presentation of Form of Synthesis is psychologically more primitive than that of Relations. It is involved in the identification of a complex object as a whole, and its distinction from other objects ; whereas relations only become apprehended through a subsequent process of analysis, by which the several constituents of the complex are discriminated. Nor is even the successive discrimination of these constituents of itself sufficient. The transition of attention from the one to the other is not enough. If the relation of any two constituents is to be cognised, both must be attended to at once, as parts of the same whole. Otherwise the transition from one to the other will remain an anoetic experience.

This point has been well put by Mr. Lloyd Morgan in his recent work on *Comparative Psychology*. " I look around me in my room, and fix my eyes and my attention on this, on that, and on the other familiar object. With each new centre of vision and of attention there is a new grouping of the visual scene in relation to a new focus. But as I do so, my mind need never for a moment dwell on the relation-

ships of the objects to each other in space. Related in space they are, and I *can* perceive the relations. But I may look around me for hours without paying any attention to them—without their ever coming to the focus of my consciousness.”¹ In general, I agree with the writer’s account of the way in which he comes to perceive relationships. There are, however, two points in which I cannot quite follow him. I do not understand what he means when he says that the perception of relation involves introspection. The mere fact that it involves a reversal of the “past course of the psychical wave” in no way tends to prove this. An introspective looking back would involve a recognition of the psychical wave as such, *viz.*, as an occurrence in the history of the individual consciousness. But introspection in this sense, which appears to me to be the only legitimate one, would rather hinder than help the apprehension of any kind of relationship which is not itself psychical. There seems to me to be a confusion in Mr. Lloyd Morgan’s mind between his own position and that of the psychical subject he is describing. He himself, in analysing the perception of relationships, performs an act of introspection. As a result of his reflective examination of the course of consciousness, he recognises that even where the relation between two objects is not perceived, yet the transition of the mind from the one to the other involves a relational experience, which he correctly enough describes as “marginal,” and which I should call anoetic. Now this relation in anoetic experience is, of course, purely a psychical fact, and the apprehension of it can only take place through retrospective analysis. But this retrospective act which Mr. Morgan performs is altogether different from the process by which the “marginal” or anoetic relation enters into noetic consciousness, and becomes transformed into the definite apprehension of the

¹ P. 221.

relation of two objects in space. There is a second point of difference, which, though it is more apparent than real, requires some explanation. According to Mr. Morgan, the perception of a relation, as such, is produced by making the relation "focal," and the related terms "marginal". "First, a is focussed with c marginal, and then c is focussed with a marginal. Then, and then only, when each related term has in turn been focal to consciousness, can we make both marginal, and focus the relation itself."¹ I, on the contrary, have laid stress on the necessity of simultaneous discrimination of both the related terms; and it would seem that this condition cannot be fulfilled if both are marginal. This would certainly be the case if the word "marginal," as used by Mr. Morgan, were strictly synonymous with the word "anoetic". But I do not think that this is so. When Mr. Morgan says that the related terms become marginal, he means, I presume, that the corresponding presentations become blurred, *i.e.*, they lose vividness and internal differentiation. What I mean when I say that the related terms are both distinctly apprehended is, that they are both thought of as distinct from each other, and as both belonging to some kind of total object.

The form of combination corresponds roughly to what logicians call the *fundamentum relationis*. "Whenever two things are said to be related, there is some one fact, or series of facts, into which they both enter; and whenever any two things are involved in some one fact, or series of facts, we may ascribe to these two things a mutual relation grounded on the fact."² This "fact" is the *fundamentum relationis*. To bring this statement into agreement with our own, we have only to add that the foundation "fact" (or "series") must be regarded in its formal aspect; only in so far as it is characterised by the synthetic unity which constitutes it a

¹ P. 227.

² Mill's *Logic*, vol. i., p. 73 (9th edition).

single fact (or series) can it be the ground of a relation between the members of the manifold which it comprehends.

It may be urged that a sufficiently searching and comprehensive analysis would exhibit every synthetic unity as consisting in a sum of relations, and in nothing else. The question whether this be actually so or not, concerns logic and metaphysics rather than psychology. For our present purpose it is enough to point out that, whether or not in the *ordo ad universum* a whole in its formal aspect can be resolved without remainder into relations between its components, and into interrelations of these relations, in the *ordo ad nos* this is certainly not so. Relations are apprehended only so far as parts are distinguished; but a whole with its characteristic unity may be apprehended without definitely distinguishing its several constituents from each other. Besides this, in most cases the relations within a whole are far too multitudinous and complicated to admit of being simultaneously apprehended, or even of being exhausted by successive acts of analysis. This becomes evident when we consider that the sum of relations includes not only the relations of each distinguishable part to every other distinguishable part, but also the interrelation of these relations. When all the relations are apprehended at once, there seems to be no psychological motive for distinguishing them in their totality from the synthetic unity of the whole. We have already considered an instance of this in simple judgments of likeness and unlikeness.

Whatever distinction we may make between Relation and Form of Combination, there is at least one point in which they agree. Whatever can be urged to show the relative distinctness and independence of the apprehension of form and the apprehension of matter, can be urged with equal force to show the relative distinctness and independence of the apprehension of relation and the apprehension of terms related. This is implied in any equation of ratios, such as $\frac{3}{5} = \frac{4}{8}$.

§ 6. FORM AND FORMULA.

Not all the relations distinguishable by analysis within a whole are of equal importance. Some primary relation or relations are often discoverable on which the rest are more or less completely dependent, and which pervade the whole, connecting the multiplicity of its parts with some central part or parts, or with each other. It follows from this pervasiveness, which is essential to it, that a primary relation is of an abstract and general character. In its abstractness and generality it is capable of being expressed in a general proposition, and this general proposition constitutes a more or less adequate determination of the general nature of the whole in its formal aspect. Now I propose to call such general, pervasive, and characteristic relations, *formulas* of combination, in order to distinguish them from *forms* of combination. The equation of a curve may be taken as a typical example of a formula which adequately determines the nature of the whole it formulates. The equation actually supplies an unfailing rule for the construction of the curve. But, even in such cases as this, we cannot, as psychologists, identify the formula with the form. The ellipse was discovered by section of a cone before its mode of construction by reference to co-ordinates was known. Even the shape of a circle may be apprehended in its characteristic unity and distinctness from other figures without any apprehension of its formula as expressed in Euclid's definition. To take an extreme instance, this must be the kind of cognisance which the idiot has of it who learns to identify different shapes by sorting out into separate heaps a collection of models containing examples of each kind of figure, so as to bring together figures of the same kind. Conversely, a formula may be given before the whole which it characterises, and may be used as a key or clue to the discovery or construction of that whole.

CHAPTER IV.

IMPLICIT APPREHENSION.

§ 1. INTRODUCTORY.

ABSURD as it is to suppose that we can be aware of synthetic unity characteristic of a whole without being aware of the manifold which is synthesised, yet we are constantly having experiences which appear to come very near fulfilling this condition. It is certainly possible to think of a whole in its unity and distinctness without discerning all or even any of its component details. We shall first adduce evidence in support of this statement and then investigate its meaning more closely.

§ 2. MEANING OF WORDS.

Perhaps the most obvious and striking class of instances is furnished by the use of language in ordinary speaking, reading, and writing. The general meaning of a word unfolded in detail would always exhibit a plurality of particulars, severally corresponding to the different occasions on which it is applicable. The common applicability of the word on these different occasions depends on this plurality being connected in some kind of unity. In so far as the connection consists merely in the possession of common characteristics by a multiplicity of objects otherwise distinct, the whole for which the words stand is called a *class*—of things, qualities, actions, or relations, as the case may

be ; and the idea of the whole is called a general concept. Nearly all words stand for a whole constituted in this manner. Besides this kind of synthesis, the members of a class have often real connections which are included in the meaning. Thus, men do not merely resemble each other ; one generation actually owes its being to that which preceded it, and individual men unite in society. Singular names apply to individuals as such : in so far as their application depends on constant characters exhibited by the same individual at different times, the sort of unity which they signify is essentially like that of a class, but the real connection of varying phases in the history of the individual is always of predominant importance. Thus the baby is called by the same name as the adult. Finally, we must note, as regards all names but those of simple qualities (if there be such), that the common characters which determine the application of a class name, and correspond to what in logic is called its connotation, have their own typical mode of synthesis, which, like the characters synthesised, receives various kinds of specification in different members of the class.

We have said enough to show that words usually stand for very complex combinations. Yet it seems certain that the mental state which we call *understanding the meaning of a word* need not involve any distinction of the multiplicity of parts belonging to the object signified by it. To bring this multiplicity before consciousness in its fulness and particularity would involve the imaging of objects with their sensory qualities, visual, auditory, tactual, etc. But it has often been pointed out that in ordinary discourse the understanding of the import of a word is something quite distinct from having a mental image suggested by the word. No one has shown this with greater clearness than Edmund Burke. The true state of the case was brought home to him in examining the way in which poetry and eloquence excite emotion. The relevant passages

occur at the close of his *Inquiry into the Origin of our Ideas of the Sublime and Beautiful*. His testimony is of the more value because the result of his observation was evidently a surprise to him, and appeared strange and paradoxical both to himself and others. "Whatsoever power" such words as "virtue, honour, persuasion, docility, may have on the passions, they do not derive it from any representation raised in the mind of the things for which they stand. . . . Nobody, I believe, immediately on hearing the sounds, virtue, liberty, or honour, conceives any precise notions of the particular modes of action and thinking . . . for which these words are substituted. . . . Put yourself upon analysing one of these words . . . and you must reduce it from one set of general words to another . . . in a much longer series than may at first be imagined, before any real idea emerges to light, before you come to discover anything like the first principles of such compositions ; and when you have made such a discovery of the original ideas, the effect of the composition is utterly lost. A train of thinking of this sort is much too long to be pursued in the ordinary ways of conversation ; nor is it at all necessary that it should. Such words are in reality but mere sounds ; but they are sounds which being used on particular occasions, wherein we receive some good, or suffer some evil ; . . . and being applied in such a variety of cases, that we know readily by habit to what things they belong, they produce in the mind, whenever they are afterwards mentioned, effects similar to those of their occasions. . . . The sound, without any annexed notion, continues to operate as before."¹ It is evident that in Burke the sensationalistic bias is so strong that he finds it impossible frankly to affirm the existence of notions which are not images. He therefore repeatedly speaks of the emotional effect as produced by the mere sound. At the same time he seems unable to maintain this position consistently. For how can we be said

¹ *Burke's Works*, vol. i., pp. 303-304.

to know readily by habit to what things the words belong, if no notion is annexed to them? In the above he has spoken only of words which do not readily suggest images, even when we make an effort to call them up. But he is fully aware that the same remark applies to names of things which are easily picturable, such as man, castle, horse, when these names are rapidly and fluently combined. "I am of opinion that the most general effect, even of these words, does not arise from their forming pictures of the several things they would represent in the imagination; because, on a very diligent examination of my own mind, and getting others to consider theirs, I do not find that once in twenty times any such picture is formed, and, when it is, there is most commonly a particular effort of the imagination for that purpose. . . . Indeed, it is impossible, in the rapidity and quick succession of words in conversation, to have ideas both of the sound of the word and of the thing represented."¹ This he illustrates very aptly and at some length, adducing among other instances the description of the formation of thunder in Vergil—a description which loses its emotional effect if we attempt to translate it into definite imagery. Burke confesses that he found it "very hard to persuade several that their passions are affected by words from whence they have no ideas; and yet harder to convince them that in the ordinary course of conversation we are sufficiently understood without raising any images of the things concerning which we speak".² He might well find it difficult to persuade people that they understood the meaning of words without having any "notion" of the object signified by them. For this is a contradiction in terms. He deserves all praise for his moral courage in abiding by the facts as he found them, in spite of the absurdity of the conclusion to which they appeared to lead.

Observations similar to those of Burke are to be found in

¹ *Burke's Works*, vol. i., pp. 307-308.

² *Ibid.*, pp. 308-309.

many writers on introspective psychology. We shall presently have occasion to refer to Hobbes, Berkeley, Hume, Stewart and Dr. Campbell, who all bear unequivocal testimony to the fact that the flow of words is for the most part unattended by a parallel flow of mental imagery. Professor Ribot has recently instituted statistical inquiries which lead to the same result. He states his problem thus: "When a general term is represented, heard, or read, what is there in consciousness besides the word itself—immediately and apart from reflection?" M. Ribot has examined 103 persons, in order to obtain a "partial and provisional answer" to this question. He thus describes his method: "I said to the subject: 'I am about to pronounce a number of words; I wish you to tell me, immediately and without reflection, whether each word calls up anything or nothing to your mind, and if it calls up anything, to tell me what it is'. The answer was immediately noted down."¹ Out of upwards of 900 replies, the most frequent was "nothing," the only sensory image present in consciousness being the sound of the word. In other cases there was an image of some concrete example, which was sometimes accompanied by a visual image of the printed or written word. Sometimes only this graphical or typographical imagery was present. M. Ribot admits that the method of experimenting with isolated words is artificial, because the unit of ordinary discourse is a sentence. He, therefore, made some trials, in which abstract statements were substituted for abstract terms. The results obtained were exactly the same as in the case of detached words. It would seem, however, that in the sentence-experiments he omitted to investigate what is, perhaps, the most interesting point. He asked his subjects what image each sentence as a whole called up, but he does not seem to have inquired what image this or that word called up at the moment of its

¹ "Enquête sur les Idées Générales," *Revue Philosophique*, Oct., 1891.

occurrence as a component of the sentence. In conclusion, M. Ribot remarks that the reply "nothing" indicates unconscious mental process. The "nothing" cannot be really nothing, because the word is *understood*. I agree with M. Ribot that unconscious processes are involved. But the mental state which is called *understanding* a word is certainly a state of cognitive consciousness. All that we are justified in saying about it is that it is a state of cognitive consciousness which does not necessarily include a sensory image of the object cognised, and which for the most part occurs without such an image.

It may be said that in reality all understanding of words involves the presence of images, but that these images are often so fleeting and shadowy as to escape detection. I readily admit that images not infrequently occur which are extremely vague and evanescent. But I cannot admit that these attenuated ghosts of imagery either constitute or necessarily accompany the implicit apprehensions connected with the use of words in ordinary discourse. My reasons are as follows:—

(1) For the most part, not even the most shadowy images are detected by introspection or retrospection. (2) We ought, therefore, to have some strong positive ground for assuming their presence; but no such ground is indicated. (3) How are we to account for this hypothetical imagery escaping detection? Is it because it is even more fleeting and evanescent than the vaguest of the images which are observable? If this be the assumption, we reply that we find difficulty in conceiving any appreciable distinction between imagery, which is supposed to be vaguer than the vaguest we have noted in our own minds, and no imagery at all. (4) This suggests another point. The graduated series of increasing degrees of indistinctness supplies a gradual transition from imaged to imageless apprehension. There is no abrupt separation between them. This in itself makes it easier to see that

sensory images are not essential to thought. (5) Another consideration which yields the same result is this. If and so far as an image is the essential medium of the apprehension of an object, we are justified in assuming that defectiveness in the image will involve correspondingly defective apprehension. Now in one respect this is so. As the image fades, the constituent parts of the object cease to be discernible. Thought loses its internal distinctness. But there is no proportionate failure in the power to distinguish the apprehended object from other objects. Now this power is all that is necessarily implied in the imageless apprehension, which is sufficient to constitute the psychical state called *understanding the meaning of a word*. (6) Finally, it should be noted that the mental imagery which is sometimes found to accompany the use of words is frequently not merely dim, fragmentary, and evanescent, but also more or less irrelevant. Instead of embodying essential features of the object, it represents some casual and insignificant association. Thus, in looking over what I have just written, my eye catches the word *understanding* and as my mind dwells on it for a moment there arises the shadowy mental picture of two persons, one listening to the other. Can it be said that this picture includes as an integral part of itself the representation of what we mean when we use the word *understanding*? The image in this case is obviously only a collateral and somewhat irrelevant accompaniment of my apprehension of the import of the word. The term *wealth* may call up the image of a bale of goods. Can it be fairly said that the features essential to the conception of wealth are to be found within this mental picture, *quâ* picture, so that they only need to be separated from what is irrelevant by selective attention? Even the names of concrete things suggest rather what is most easy to picture than what is most essential. Thus, if I mentally dwell on the word *animal* so as to get an

image, what occurs to me most readily is some vague outline of the external shape of a quadruped, and I cannot on reflection discover that this image contains any essential characters distinctive of the conception of an animal, as inclusive of birds, snakes, etc.

In reality, imagery of this sort is part and parcel of the word itself considered as a sign, rather than of the meaning which it signifies. It constitutes what has been called by philologists the "inner-speech form". On the whole, we may fairly conclude that there is no reason for supposing the verbal train to be accompanied by a corresponding train of images where introspection fails to detect them, and there are some considerations which strongly favour the opposite view. Even in many cases when images are present, what I have called their irrelevancy forces us to regard them as mere accessories of imageless apprehension. Later on we shall see that this is true even in the case of relevant and adequate images.

It may however be contended that, after all, Burke was right in affirming that where a word is unaccompanied by an image there is no notion in the mind, but only a mere sound or articulation or both; it may be contended that an unimaged thought, or, at any rate, that the thought of a whole without any discrimination of the parts entering into its composition, is at least as great a paradox as the use of words without any thoughts or notions at all. We reply in the first place that an imageless thought is no absurdity, however opposed such a conception may be to the hardened prejudice of those who have accustomed themselves to regard consciousness as a kind of picture gallery or as a magic lantern in which the slides displace each other in rapid succession. There is no absurdity in supposing a mode of presentational consciousness which is not composed of visual, auditory, tactual, and other experiences derived from and in some degree resem-

bling in quality the sensations of the special senses ; and there is no absurdity in supposing such modes of consciousness to possess a representative value or significance for thought, analogous in some degree to that which attaches to images, just as revived images may have a representative value in some degree comparable to that of sense-perceptions, in spite of very great differences in respect of distinctness, vividness, and quality. We do not allege that a whole may be apprehended as such—*i.e.*, as a synthesis or combination—without some discernment of the plurality which it includes ; what we do say is that without discernment of the multiplicity it really comprehends, it may yet be apprehended as having a characteristic nature distinguishing it up to a certain point and for certain purposes from other things, and therefore as possessing the unity which such distinctness directly implies.¹ In this there is no absurdity ; but the assumption that words are commonly used in ordinary discourse without being even imperfectly understood involves a very great absurdity. It is ridiculous to suppose that we can talk or write about intricate topics, combining our words with appropriateness and fluency, borne along by the strongest interest in our own discourse, and feeling that we intimately understand what we say, and yet have nothing in our minds or on our lips but a series of mere sounds. Were Burke's speeches against Warren Hastings nothing for the consciousness of the speaker, but the train of motor and auditory images and sensations involved in their mere delivery ? If it be said that the words operate through their pre-acquired associations, the point at issue is decided in our favour. For the association

¹There is, of course, such a thing as distinction of parts or constituents without imagery. This may happen whenever we define or analyse the meaning of a word by means of other words, and it may no doubt take place to some extent without the aid of language. But, for the most part, in ordinary discourse we merely catch the meaning of the word as an unanalysed unit, and then pass on.

can only work by suggesting something which we call the *meaning* of the word.

Hobbes, who was well aware that, for the most part, words are unaccompanied by images, being debarred by the whole spirit of his philosophy from admitting anything of the nature of imageless thinking, has recourse to the desperate expedient of ranking ordinary discourse with such actions as walking, which have become automatic through habit. "*Ratio* now is but *oratio*, for the most part, wherein custom hath so great a power that the mind suggesteth only the first word : the rest follow *habitually*, and are not followed by the mind ; as it is with beggars when they say their *pater-noster* . . . having *no images* or *conceptions* in their mind answering to the words they speak."¹ This is indeed a desperate resort ; language shares the plasticity of thought itself ; it is being incessantly adapted to new occasions in the most delicate way, new combinations of words accompanying new combinations of meaning. Speaking physiologically, our discourse both internal and external is connected with the higher and imperfectly organised centres. It lacks the uniformity and fixity of automatic processes. It is also distinguished from them by its dependence on attention ; we can, it is true, utter words, while our attention is fully occupied in another direction, but the distinction between such mechanical utterance and anything which can be called "discourse" is very marked. It is necessary to "discourse" that the mind should "follow the words" and control their combination from moment to moment. To suppose that "mental trains" which interest and engross attention and produce exhaustion consist in mere automatic flow of words is the acme of absurdity. The same conclusion follows from our ability to reproduce the substance of what we have heard or read in language of our own differing from that in which it was originally conveyed.

¹ *English Works* (Molesworth's edition), vol. iv., pp. 24-25.

A more plausible explanation than that which has been quoted from Hobbes has been advanced by many nominalist writers, of whom Berkeley and Dugald Stewart may be taken as representatives. According to this view, words are symbols which, like those of algebra, can to a large extent be manipulated without being interpreted. "A little attention," says Berkeley, "will discover that it is not necessary (even in the strictest reasonings) significant names which stand for ideas should, every time they are used, excite in the understanding the ideas they are made to stand for—in reading and discoursing, names being for the most part used as letters are in algebra."¹ This account of the matter is better than that of Hobbes, inasmuch as it provides an exercise for the attention. But, unfortunately, the direction which it assumes the attention to take is precisely the direction which it does not take. Where signs fulfil their function, by serving as provisional substitutes for the things signified, the mind directly occupies itself with these substitutes, and with their combination in accordance with prescribed rules. Now we do not ordinarily concentrate our thoughts on the words which occur in our own discourse or in that of others. When the words fulfil their function best, they are least obtrusive. When through weariness, or for any other reason, we have difficulty in grasping the meaning, the signs themselves arrest our attention. We usually disregard them, as we disregard the visual magnitude of objects, which serves merely as a sign of their real magnitude. Another point in which the analogy between words and algebraic symbols fails, is the absence of rules of operation determining verbal combinations. Grammatical rules are obviously inadequate. Dugald Stewart thinks that what is needed is supplied by the logical principles of inference.² The futility of this suggestion becomes evident when we

¹ *Works* (Fraser's edition), vol. i., p. 150.

² Vide *Philosophy of the Human Mind*, vol. ii., chap. ii., §§ 2, 3.

consider how extremely small a portion of ordinary discourse, whether spoken or written or merely mental, consists in purely formal reasoning. In such reasoning the starting point is given in certain combinations of terms, supposed to have fixed values, and the process consists in educing from these certain other combinations, merely by the application of certain fixed rules of operation. Procedure of this kind is a special task set for the student of formal logic, and to the beginner, who has had no mathematical training, the mental attitude which it involves is unfamiliar and often repellent. Ordinary reasoning is not of this kind, any more than a living man is a skeleton. Even if it were, Stewart's theory would still cover only a comparatively small part of the facts: for reasoning is but a small part of the discourse of all but those whose special business it is to reason. It is also to be noted that words in common usage do not possess the fixity of meaning necessary to the elements of a formal calculus. On the contrary their import is perpetually shifting, according to the circumstances under which they are applied and the context in which they occur.

The inadequacy of Berkeley's explanation was perceived by another extreme nominalist. Dr. Campbell realises the difficulties of the case more fully, and makes a more serious attempt to deal with them, than any other writer who supposes that the flow of thought consists for the most part in a series of words which do not express meanings, but are substituted in their stead. "That mere sounds," he says, "which are used only as signs, and have no connexion with the things whereof they are signs, should convey knowledge to the mind, even when they excite no idea of the things signified, must appear at first extremely mysterious. It is therefore worth while to consider the matter more closely."¹ The principle

¹ *Philosophy of Rhetoric*, vol. ii., bk. 11, ch. vii., p. 96 (my edition is dated 1776).

on which he bases his explanation of the mystery is "that ideas associated by the same idea will associate one another. Hence it will happen that if from experiencing the connexion of two things there results, as infallibly there will result, an association between the ideas or notions annexed to them, as each idea will moreover be associated by its sign, there will likewise be an association between the ideas of the signs. Hence the sounds considered as signs will be conceived to have a connexion analogous to that which subsisteth among the things signified."¹ The same view had been briefly indicated by Hume in a passage which Campbell quotes—"The custom which we have acquired of attributing certain relations to ideas still follows the words," and enables us immediately to perceive the absurdity of certain statements merely through the incongruity of the verbal combinations in which they are expressed. Hume gives as an example the proposition "*that in war the weaker have always recourse to conquest*".² It is clear that some of the objections urged against what we may call the Berkeleian view apply to this also. The assumption on which it rests is that in the absence of imaged objects our attention occupies itself with the arrangement of the words themselves, noting the familiarity or strangeness of their combinations. But this assumption is, as we have seen, inconsistent with ordinary experience. Besides this, Campbell's explanation is hard to reconcile with the continual changes of import which words undergo in varying circumstances and varying contexts. This would seem to make it impossible to perceive immediately the fitness or unfitness of a verbal combination through the mere influence of custom. A combination may be quite unfamiliar, and yet it may be immediately felt as congruous, and even as peculiarly felicitous, if it happen to be suitable to the occasion of its employ-

¹ *Philosophy of Rhetoric*, vol. ii., bk. 11, ch. vii., p. 99.

² *Treatise on Human Nature*, bk. 1, pt. 1, § 7.

ment or to its place in the organic whole of speech in which it occurs. This objection is part of a wider one. In general, Campbell's doctrine rests on a false estimate of the amount and kind of verbal repetition which is to be found in ordinary discourse. Let any one pick out at random a sentence from a book, and then let him look for another exactly like it: it is a hundred to one that he will fail in finding one even by a long and diligent search. Sentences indeed are, for the most part, composed of mere elementary conjunctions of words which have become familiar through custom. But the *point* of a sentence which interests and attracts attention usually finds expression in the relative novelty which belongs to it as a whole. This point must be in some degree seized if the meaning is to be in any measure understood. Otherwise there can be no acceptance of it as true or rejection of it as false, no appreciation of it as important or insignificant, no sense of its internal possibility or absurdity. When a sentence or series of sentences produces a mere blank failure to understand—a mere felt absence of meaning—it may nevertheless consist of quite familiar sub-combinations of words. Pope's "Song by a Person of Quality" is a good example. On the other hand, words may immediately present themselves as charged, for some minds at least, with deep and impressive significance although they are combined in strikingly unfamiliar ways—in parts of Carlyle, for example. Both the absence of meaning in the one case and its presence in the other may be apprehended "immediately" without having recourse to mental imagery.

§ 3. OTHER CASES.

The meanings of words supply by far the most impressive and important class of cases in which we take cognisance of a whole without discerning any of its parts. But instances are also to be found in wordless thought. Perhaps the most

striking examples are those in which we gather up in a moment the result of a series of successive steps. To quote Lotze: "When we have listened to a poem recited, to a melody sung, and forget the words and the tones, while yet all that was in them lives on in an abiding mood of our soul; when we first send our glance over the scattered details of a landscape, and then, after the definite outlines have long disappeared from our memory, still preserve an indelible total impression," we make "combination and fusion of myriads of details into the whole of supersensible apprehension; which we but reluctantly again analyse into its constituent parts in order to communicate it to others".¹ W. James adduces as examples of imageless apprehension the "shadowy scheme of the form of an opera, play, or book, which remains in our mind and on which we pass judgment when the actual thing is done".

§ 4. "PSYCHIC FRINGES."

So far, we have mainly considered cases in which apprehension of a whole takes place without discernment of any of its constituent details. We have now to turn to the instances in which only a certain part, or certain parts of the whole are distinctly apprehended while the rest appears as a distinctionless unity,—as a *somewhat* which may be separated into its component items, but which is not so separated at the moment. It is no exaggeration to say that this mode of thinking pervades our whole mental life. If it is ever absent, it is absent only in very primitive phases of conscious existence. The whole doctrine of "psychic fringes," which has been expounded with so much force and fulness by Professor James, comes under this head. His terminology is convenient, and

¹ *Microcosm*, Eng. trans., vol. i., p. 635. I have substituted the word "apprehension" for "intuition" as more suitable to my own terminology.

we shall use it freely. In one respect, however, it tends to mislead. It is apt to give a false impression of the comparative importance of the distinct apprehension of the part on the one hand, and the distinctionless apprehension of the whole on the other. Fringes are less essential than that which is fringed: overtones count for less than their fundamental tone; a halo is merely an appendage of what it encircles. But in the metaphorical application of such terms, which we are now considering, this does not hold. If any thing is to be regarded as relatively inessential, it is not the psychic fringe but the image or other apprehension of detail which it fringes.

Professor James dwells only on the part played by psychic fringes in higher cognitive states. He fails to bring out its importance for sense-perception also. But a little consideration shows that complex sensible objects do not appear to the percipient in all their sensible detail. When I look at a house, what is actually seen together with what is mentally pictured constitutes only a small part of the object as it is perceived. The actual sensations and the attendant mental imagery do not by their limitation limit the objective reference. This is possible only because an imageless representation of the whole is conjoined with the sensible appearance as its "psychic fringe". At the most, only the last two or three notes of a melody are perceived at its close, and yet the musically gifted are aware of it as a whole. Similarly, I may be keenly aware of the unity of a sonnet in respect of metrical form while I am reading the last lines, although the words of the preceding lines are no longer present to my mind. All perception of a series of changes as forming a whole, involves imageless apprehension. If I follow with my eye the movement of a body in space from one place to another, what I apprehend in sensible detail at any one moment is the changing position of the body at that moment. The successive phases of the process are imaged, but the movement as a whole cannot from

the nature of the case be represented in sensuous detail. Besides actually perceiving or mentally envisaging the position of the object at this or that moment, I must, in order to be aware of the movement as a whole, have an anticipation of its future course, and a retrospect of its past course, in the way of imageless apprehension. Again, the perception of distance by means of the eye is generally held to involve a suggestion of the experiences which would accompany movement towards the object through the intervening space, but as a matter of fact no train of mental images corresponding to these experiences actually unfolds itself in consciousness. The series exists only in what Herbart would call a "state of involution". The whole is apprehended without apprehension of its component details. The same is usually true of the intention to execute a movement. Similar examples might of course be multiplied without end.

The nature of "psychic fringes" is illustrated in a very striking way by trains of thought. In every train of thought, strictly so called, a single central topic—a permanent object—is throughout kept in view. The orderly sequence of special apprehensions is due to the controlling influence of the persistent and central thought. In so far as we think successfully, each special apprehension as it arises constitutes a further specification and definition of the general topic to which the whole series is related. We have cognisance of this topic as a whole during the entire process; but its special parts or aspects are apprehended only piecemeal. In so far as we have not already specified its nature in detail,—in so far as we are merely endeavouring to do so,—it is for us a blank form or *schema* to be filled in. It is, as Professor James says, "a problem, a gap which we cannot yet fill with a definite picture, word, or phrase, but which . . . influences us in its intensely active and determinate psychic way. Whatever may be the images and phrases that pass before us,

we feel their relation to this aching gap. To fill it is our thought's destiny. Some bring us nearer to that consummation. Each swims in a felt fringe of relations of which the aforesaid gap is the term."¹ This is excellently said. It should however be added that the persistent topic of thought is not merely felt as a "gap". With the forward reference or "permanent consciousness of whither our thought is going," there is inseparably combined in each step of the process a backward reference to what it has already achieved, a consciousness of whence our thought is coming. When the process is completed, this backward reference alone remains.

§ 5. SUMMARY OF RESULTS ; IMPLICIT AND SCHEMATIC APPREHENSION.

We may now proceed to formulate our results. (1) It is possible to distinguish and identify a whole without apprehending any of its constituent details. (2) This is not an awareness of form of combination apart from that of elements combined ; for where there is no distinction there can be no synthesis. (3) The distinctionless unity of the whole tends to pass into multiplicity as the mind dwells on it. (4) This tendency is also a feeling of tendency,—a peculiar experience. If our attention lingers on the meaning of a word instead of passing rapidly from it, as in the flow of ordinary discourse, images, or at least defining words or phrases, are called up. Now, before these details arise, we have a presentiment that they are coming, or that they will come, if we continue to fix our attention appropriately. It is as if the multiplicity were somehow wrapped up in the distinctionless unity and were struggling to unfold itself. (5) This circumstance suggests a name for that apprehension of a whole which takes place without discernment of its parts. We may call it implicit apprehension. In so far as

¹ *Psychology*, vol. i., p. 259.

the component parts become discernible, implicit apprehension becomes *explicit*. This does not of course mean that in some mysterious way the plurality is at once apprehended and not apprehended. We merely mean that it *tends* to emerge and that it does so when we give it due opportunity. The reason why we introduce the word "implicit," instead of merely speaking of imageless apprehension, is that the component details of a whole may themselves be objects of imageless apprehension, as in a train of thought carried on by means of words. (6) When the parts of a whole are merged in a distinctionless unity, or, in other words, when our apprehension of the whole is completely implicit, we can be aware of no synthesis, and therefore of no form of synthesis. But when some part or parts are distinguished, when apprehension is partly explicit, the case is different. In so far as the special features of the total object emerge successively into distinctness in an order and in relations determined by the "permanent consciousness of whither our thought is going," the unity of the object must appear as a synthetic unity. This is already implied in the language which we were led by the nature of the case to use in describing the progress of a train of thought. Thus we spoke of the permanent and central topic, which receives progressive specification, as a *schema* to be filled in. So far then as the implicit idea or perception of a whole determines the successive emergence of its parts in consciousness, we may apply to it the term "schematic apprehension". This schematism is not without affinity to that of Kant. "As the synthesis of the imagination does not aim at a single intuition, but only at some kind of unity in the determination of sensibility, the *schema* ought to be distinguished from the image."¹

¹ *Critique of Pure Reason*, Müller's translation, vol. ii., p. 124. There is a slight verbal amendment in the quotation.

CHAPTER V.

JUDGING OR BELIEVING AS A MENTAL FUNCTION DISTINCT FROM SIMPLE APPREHENSION.

§ 1. STATEMENT OF PROBLEM.

JUDGMENT is the Yes-No consciousness ; under it I include every mode and degree of affirmation and denial—everything in the nature of an acknowledgment explicit or implicit of objective existence. I use the term Belief as a convenient variant for Judgment. It is impossible to avoid doing some violence to the use of these terms in ordinary language. There is no single word to express what I call “Yes-No consciousness” in its abstract generality. In common usage there is a certain tendency to restrict the use of the term “judgment” to cases in which mental affirmation or denial pretends to be based on some kind of logical justification implicit or explicit. “Belief” is the word specially selected for affirmation or denial which is predominantly referable to practical or sentimental motives. “Faith” or “belief” are the words which apply to the conviction produced at the Wesleyan penitent form ; whereas no one would naturally say that he *believes* in the equality of the angles at the base of an isosceles triangle. In using the words “belief” and “judgment” interchangeably, I am adopting a somewhat clumsy device for excluding these specific implications, so as to leave only the fact of affirmation or denial. Even so, both words have to be stretched so as to embrace cases to which they are not usually applied. Reid

says that when we perceive a tree, we have a "conception" of the tree and a *belief* in its existence. In this I follow him ; but common speech hardly appears to admit of this employment of the word. The term "judgment," when it does not merely signify the *faculty* of judging, seems to be appropriated to signify the objective state of things which is expressed by an affirmation or denial, and not the psychical act of affirming or denying. We cannot say that we "feel a judgment," though we may say that we "feel a belief". This is not merely due to the emotional colouring often associated with belief ; for we can also say that we "feel convinced" or "assured," in instances where this emotional colouring is inconspicuous or absent. Thus it is permissible to say that we "feel a conviction" or "assurance" that Charles I. was beheaded in the year 1649. In giving a wide scope to the term Belief, I follow such writers as James Mill, who comprehends under this word "every species of conviction or assurance ; the assurance of what is before our eyes, as of that which we only remember or expect ; of what we know by direct perception, as well as of what we accept on the evidence of testimony or reasoning".¹ It is an objection to this usage that it seems to confuse the distinction between Belief and Knowledge. But this distinction is logical rather than psychological. Besides, it should be noted that though we propose to regard all "knowing" as "believing," we do not regard all believing as knowing. Any one, on being pressed, would admit that he believes what he knows, although there is much that he believes without knowing it. It is true, that on being asked, "Do you believe so and so?" a man may reply, "I don't *believe*, I *know*". But his meaning is, not that the word "belief" is inaccurate as far as it goes, but only that it is inadequate. It would be just as natural for him to reply, "I don't *merely* believe". It may be objected

¹ *Analysis*, i., 343 (note by J. S. Mill).

that there is such a thing as knowing something and not being able to bring oneself to believe it. But this is only a paradoxical way of saying that we are impelled in one direction by prejudice or emotion, and in another by evidence. We are not in the act of *knowing* a thing unless the evidence is so distinctly present to our minds as to compel belief. An opposite belief, supported by sentimental or other motives, may intrude as soon as the evidence fades from the mind.

The distinction between positive and negative judgment is conveniently expressed by the antithesis between the terms "belief" and "disbelief," and the corresponding verbs "believe" and "disbelieve". Disbelief must be regarded as a case of belief; to disbelieve a proposition is to believe its contradictory. But denial, no less than affirmation, is an acknowledgment of objective existence. The denial that William Tell ever lived, is the expression of a belief about historical matter of fact. It means that the ideas which we connect with the name of Tell are incompatible with the actual course of events. The question before us is whether believing and merely thinking of something are radically distinct modes of conscious reference to an object. It is, of course, obvious that we cannot affirm or deny anything without having some sort of apprehension or awareness of it. But the affirmation or denial may nevertheless be a new and peculiar attitude of consciousness to an object supervening on the simple apprehension of that object. Belief may in this respect be analogous to desire or aversion. Nothing can be desired unless it is thought of; and yet desire is radically distinct from thought. Similarly, nothing can be an object of belief which is not an object of thought; and yet believing or disbelieving anything may be quite distinct from merely thinking of it.

Brentano, who has treated this question with admirable care and acuteness,¹ claims the clear testimony of introspec-

¹ *Psychologie*, bk. ii., ch. vii.

tion for the doctrine that when we deny or affirm an object, our consciousness refers to it in a twofold way—(1) as merely thinking of it, (2) as believing or disbelieving it. He is not, however, satisfied with a general appeal to the evidence of introspection. The adverse views current among writers on psychology compel him to employ a series of special arguments in support of his position. These are partly negative, inasmuch as he endeavours to refute alternative views; partly positive, inasmuch as he adduces special characteristics of belief as evidence of its unique and irreducible nature. He begins with the assertion that “no one denies, or can deny, that there is a distinction of some kind between the two states”—between having an idea and believing. He then proceeds to examine and criticise the various accounts of this distinction, given by those who do not recognise belief as an ultimate and irreducible mode of being conscious.

Before following him in his acute and cogent argument, we shall first consider his initial assumption. It is certainly true that common sense draws a line of demarcation between believing and disbelieving on the one hand, and merely having an idea on the other. The apostle of common sense is very decided on the point. “That I may avoid disputes about the meaning of words, I wish the reader to understand that I give the name of judgment to every determination of the mind concerning what is true or what is false.”¹ “*Conceiving, imagining, apprehending, understanding, having a notion of a thing*, are common words, used to express that operation of the understanding which the logicians call simple apprehension. The *having an idea of a thing* is in common language used in the same sense.”² “Judgment is an act of the mind specifically different from simple apprehension, or the bare conception of a thing.”³ “Although there can be

¹ *Reid's Works* : ed. Hamilton, vol. i., p. 415.

² *Ibid.*, p. 360.

³ *Ibid.*, p. 414.

no judgment without a conception of the things about which we judge, yet conception may be without any judgment."¹ "It is self-evident that every judgment must be either true or false; but simple apprehension or conception can neither be true nor false."²

It will be admitted that in these passages Reid is a faithful exponent of the view of "the plain man"; and it will not be denied that in a matter of ordinary experience such as the present question refers to, the view of the plain man is worthy of respectful consideration. It may, however, turn out on examination that in framing his language and modes of thought purely with a view to the practical needs of daily life, he has fallen short of the accuracy required in scientific analysis. Where rough distinctions serve his turn, he rightly abstains from what to him are superfluous and inconvenient subtleties. Let us, then, consider the main cases in which we are supposed to have mere "floating ideas," without affirmation or negation. These cases are—(1) The state of doubt or suspense of judgment; (2) The play of fancy or "make-believe"; (3) Æsthetic contemplation without make-believe or with a minimum of make-believe.

1. Whether doubt is or is not a phase of belief, it certainly seems to presuppose belief. It presupposes belief in a disjunctive judgment. It consists in acknowledging the reality of one or other of two or more alternatives without deciding between them.³ Hesitation between alternatives presupposes that the nature of objective existence postulates one of them to the exclusion of the others. Doubt is thus an indeterminate affirmation of a determinate reality. On the other hand, it may fairly be urged that precisely so far as the indeterminateness extends, precisely so far as the doubter is undecided, belief and disbelief, affirmation and denial are absent.

¹ Reid's Works: ed. Hamilton, vol. i., p. 414. ² Ibid., p. 414.

The disjunction may not positively define all the alternatives. It

³ take the form—*A* or not *A*.

Here, however, we must distinguish two forms of doubt. Suspense of judgment may arise either because pros and cons are evenly balanced or because there are no pros and cons. In the former case there is a positive tendency both to affirm and deny the mutually exclusive alternatives. Indeed, under such conditions there is often a fluctuation between conflicting beliefs; if the evidence on one side becomes obscured for a moment, we are for the time being almost convinced of the other alternative, and *vice versa*. Such a mental attitude is certainly not indifferent as regards affirmation or denial, for it consists in a positive inclination to both. It is otherwise when and so far as the hesitancy arises from the mere absence of determining reasons. I may toss a penny in the air without having the slightest ground, valid or invalid, for mentally affirming that head will turn up rather than tail. I believe that in a sufficiently extended series of trials both will tend to turn up an equal number of times. But in any particular instance I may not feel an inclination to believe that one will occur rather than the other. My attitude towards the question may be neutral—not involving, as in the case of conflicting pros and cons, a tendency both ways. Doubt in this pure form seems to imply the presence of ideas and the absence of corresponding judgment. It implies the presence of ideas, inasmuch as both alternatives are distinctly apprehended; it implies absence of judgment, inasmuch as no tendency exists to affirm or deny either of them to the exclusion of the other. It is therefore easy to understand how this dubitative attitude of mind comes to be regarded as consisting in a mere suspense or withholding of judgment. And yet this result is not satisfactory. In doubting we must at least *propose a question* to ourselves. Now, we cannot raise a question without regarding the alternative answers to it as capable of being affirmed or denied. It cannot therefore be accurate to say that the indeterminateness, even of

dubitative attitude which arises from sheer ignorance, consists in the absence of all reference to an object in the way of affirmation or denial.

So much, however, can be fairly asserted as the outcome of our analysis of this form of doubt. In it judgment is present in a most defective, and, so to speak, attenuated form, whereas the thought which it presupposes may be quite clear and definite. There need be no vagueness or indeterminateness in the simple apprehension of the alternatives. This is sufficient, I think, to show that thinking of a thing is an attitude of the subject towards objects distinct from that of affirmation or denial. We are thus prepared to find cases in which even this attenuated form of judgment is wanting—in which not even a question is raised—in which no reference is made to a possible choice between “yes” or “no”. Let us consider whether such cases are supplied by the play of fancy or make-believe.

2. The play of fancy, or “make-believe,” as children call it, does indeed involve, after a fashion, some determination of the mind as regards truth and falsehood. The child who “makes-believe” that her doll is a baby, affirms of it what is consistent with her notions of babyhood, and denies whatever is inconsistent with them. She endeavours to develop her little drama in a coherent way, refusing to admit contrary suggestions. If her doll-baby is just about to be christened, she indignantly rejects the idea that it should be put in its cradle or play with its rattle. The same kind of artistic truth and falsehood exists also for poets and novelists and their readers. The heroine of a romance must not have raven tresses on one page and golden locks on another. “It thus happens”—to quote Professor James—“that we can say such things as that *Ivanhoe* did not *really* marry Rebecca, as Thackeray *falsely* makes him do. The real *Ivanhoe*-world is the one which Scott wrote down for us. . . . The objects within that world are knit together by perfectly definite relations, which can be affirmed

or denied." Scott himself, in writing *Ivanhoe*, in each stage of his work recognised accordance and discrepancy with the previous development of his plot and of his characters as constituting a standard of truth and falsehood, just as the child does in her little drama of which the doll is the central figure.

This affirmation and negation within the universe of discourse of fiction itself, is quite sufficient to explain why children call their flights of fancy "make-believe," and why similar flights of fancy on the part of poets and novelists, are called illusions. But this is only one aspect of the question. We have to consider the attitude of the mind in *making* belief, as well as the belief thus manufactured.

We must take into account the art as well as the illusion. Now it is evident that so far as the illusion extends, and so long as it lasts, there is at least an absence of disbelief. In the next place, the absence of disbelief seems in general to depend on the voluntary exclusion of the question of truth or falsehood, and of all considerations which would suggest it. We do not say "*no*" to the chain of feigned scenes and incidents as a whole, because we disregard from the outset the alternatives "yes" or "no". The moment that the question of whether or not the things we are thinking of exist is in any way brought before our minds, we unhesitatingly deny their existence. The illusion persists only so long and so far as it is unchallenged. In reading a novel in a railway train, if we turn it over and see the yellow back, or even look out of the window of the carriage, the incidents, etc., narrated in it are at once relegated by us to what Professor James calls the "fictive status,"—in other words, their existence is denied, or at least doubted. On the other hand, the play of imagination, while it lasts and so far as it extends, necessarily excludes all questioning as to the reality of the creatures of fancy, which we

nevertheless think about as if they did exist. But if we do not deny or doubt, may we not be properly said momentarily to affirm the existence of these imagined objects which we think of as existing? This view seems to be open to a very serious, if not a fatal, objection. It seems scarcely possible to understand the existence of a belief which disappears as soon as its contradictory is suggested,—which vanishes the moment it is challenged. It is very hard to make out what can be meant by an affirmation which carries with it no corresponding negation. "A proposition faces two ways. The possibility of its formation depends on the conception of its contradictory." "The affirmation or declaration, 'Blue!' involves at least some such process as 'Red? no! not-red, but blue'; 'Green? no! not-green, but blue'. . . . By this reference to a struggle among incompatible rivals, and the supremacy of one over the others, the judgment is defined."¹ Without going so far as to maintain, as Mr. Johnson seems to do in this passage, that all affirmations are actually accompanied by a denial of their contradictory,² we may at least assert that a belief which does not occasion the denial of its contradictory, when the idea of its contradictory is suggested, is scarcely to be distinguished from no belief at all. Indeed, I hold that it is no belief at all. Should any one still incline to contest the point, I refrain from further argument. It is sufficient to point out that whereas, in the play of imagination, our belief in the feigned existences, if we have any, is at a minimum, our ideas of these feigned existences may be in the highest degree vivid and distinct. We have here, then, as in the case of doubt, good reason for regarding "simple apprehension" as fundamentally distinct from affirmation or denial.

¹ W. E. Johnson, "The Logical Calculus," *Mind*, i., N.S., p. 8.

² I do not mean to reject this doctrine; I merely waive the point.

Perhaps the best formula for our result is the saying of Coleridge,—“Illusion is not delusion”. He lays down this maxim in his excellent criticism of Wordsworth’s poetry in the *Biographia Literaria*. He there finds fault with what he calls the *matter-of-factness* found in certain of Wordsworth’s poems. In part, this matter-of-factness consists in “the insertion of accidental circumstances, in order to the full explanation of his living characters, their dispositions and actions: which circumstances might be necessary to establish the probability of a statement in real life, where nothing is taken for granted by the hearer, but appear superfluous in poetry, where the reader is willing to believe for his own sake”.¹ “Spite of all [such] attempts, fiction will appear, and unfortunately not as fictitious but as false. The reader not only knows that the sentiments and the language are the poet’s own, and his own too in his artificial character, as poet; but by the fruitless endeavours to make him think the contrary, he is not even suffered to forget it. . . . That illusion, contra-distinguished from delusion, that negative faith, which simply permits the images presented to work by their own force, without either denial or affirmation of their real existence by the judgment, is rendered impossible.”²

3. We find a closer approximation to the complete severance of simple apprehension from judgment in that attitude of æsthetic contemplation which characterises the enjoyment of such arts as music and architecture. A conspicuous difference between these arts and the fiction of poetry and prose is that they are not essentially imitative. The question does not arise whether they are true to life or to nature. Further, though there is a demand for internal consistency and harmony in the products of music and architecture, this internal harmony and consistency is not that of

¹ Bohn’s edition, p. 214.

² *Ibid.*, p. 219.

a system of judgments ; it is purely æsthetic, not logical. Of course, judgment is present in so far as the attitude of mind of the listener or spectator is critical, but the critical attitude is essentially distinct from that of æsthetic contemplation. A person listening to a piece of music, and giving himself wholly up to the enjoyment of it, apprehends the several notes, their time-sequence, and their other relations. But he does not frame judgments, either verbal or purely mental, concerning these matters. He is simply aware of them, and enjoys them. His mental posture is suddenly and strikingly altered if a false note occurs. The mood of æsthetic contemplation for the moment disappears, and he passes a judgment on what he hears. *Mutatis mutandis*, the case of architecture is analogous to that of music. It is true that here judgment is more apt to intervene, because the æsthetic attitude is usually less persistent and absorbing. But the exclamations, "This is very fine!" or, "I like this!" if they are sincere, are conditioned by a previous moment of simple enjoyment without judgment. Painting and sculpture may be said to occupy a middle position between verbal fiction and the actor's art on the one hand, and music and architecture on the other. They are more imitative—they contain more make-believe—than the latter, and less than the former.

The distinction between simple apprehension and judgment remains, even in æsthetic contemplation, only a relative one. But this is a point which we shall take up after considering Brentano's argument.

§ 2. BRENTANO'S SPECIAL ARGUMENTS.

If the foregoing analysis is correct, Brentano is justified in assuming that there is a difference of some kind between simple apprehension and belief. The only question which can be legitimately raised concerns the nature of this

difference. Brentano shows partly by a criticism of alternative views, and partly by positive considerations, that affirmation and denial, like desire and aversion, involve a unique and irreducible relation of consciousness to its object.

The attempt to distinguish belief from simple apprehension by a merely extrinsic difference, a difference between their antecedents, or concomitants, or consequents, obviously fails to touch the real problem at issue. Thus Bain's view, according to which the distinctive mark of belief is its influence on practical activity, and James Mill's theory, according to which it depends on an "indissoluble association," are both irrelevant. The difference must be intrinsic. But an intrinsic difference, which is not a difference in the attitude of consciousness towards objects, must be either (*a*) a difference of the objects apprehended, or (*b*) a difference in the vividness or distinctness with which they are apprehended. (*b*) is obviously untenable. (*a*) finds expression in the common view of judgment as consisting essentially in a joining or disjoining of ideas, a negative or positive relation of subject and predicate. But combinations of ideas occur in abundance, which are not, *eo ipso*, judgments, *e.g.*, black horse, red leaf, wise man. On the other hand, it is by no means essential to a judgment, considered as mere affirmation or negation, that it should contain two ideas, one subject and the other predicate. In the existential proposition, "*A* exists," or "there is an *A*," "is," or "exists," cannot be legitimately regarded as a predicate of *A*. What is affirmed is simply *A* itself. It is impossible to distinguish between the affirmation of *A* and the affirmation of its existence. The case is similar with the negative proposition, "*A* does not exist".

It may be urged against this last argument of Brentano's that, after all, existential propositions presuppose an antithesis of subject and predicate which does not find grammatical expression. Existence, though it is not a predicate of *A*, is

a subject which *A* qualifies. The proposition is equivalent to "something existing is *A*". A closer scrutiny will, however, show that this objection leaves Brentano's main point untouched. To affirm that "something existing is *A*," is simply to affirm *A*—to express a positive belief in *A*. But Brentano appears to have failed to grasp the reason why this is the case. The reason is that we cannot think of *A* at all without *ipso facto* thinking of *A*'s existence. This we have shown in our examination of the nature of simple apprehension. For there is no possibility intervening between mere sentience and the thought of existence. But if this be so, the existential proposition cannot be regarded as expressing a mere combination of the thought of existence with the thought of *A*—no matter which is taken as subject and which as predicate. For the thought of *A* already includes the thought of its existence. What the existential judgment supplies is the affirmation of *A*'s existence, in the same sense in which it is thought about, and this, as Brentano says, is indistinguishable from the direct affirmation or positing of *A*.

Brentano's positive line of argument may be divided under three heads :—

(1) There is no contrast between mere ideas as such, except in so far as their objects are contrasted. We may oppose the idea of heat to the idea of cold, the idea of light to that of darkness, the idea of a high note to that of a low note. But this is only because the objects, light and dark, heat and cold, low and high, are contrasted. The antithesis of desire and aversion is of a different nature. It neither is, nor implies, a contrariety between objects, but only a contrariety in the mode in which consciousness may refer to one and the same object. Now the opposition of assertion and denial is in this respect entirely analogous to that of desire and aversion.

(2) In ideas there is no intensity except that which belongs

to the presented content of consciousness. The reference to an object has no intensive gradations. It is otherwise in the case of desire and aversion. These feelings may have all degrees of intensity. So, too, belief has an intensity of its own consisting in what is called "degree of assurance or conviction". This kind of intensity is specifically different both from the violence of desire and the vividness of presentation.

In a later work, *Vom Ursprung sittlicher Erkenntnis*, Brentano denies that intensity can properly be predicated of the act of affirmation or denial. It does not appear, however, that the present argument is vitally affected by this change of view. Assurance or conviction certainly admits of degrees. Doubtless it is better to designate these degrees as degrees of firmness or fixity rather than of intensity. For the word "intensity" in its ordinary application in psychology is more circumscribed in meaning than the term "intensive magnitude" as used by Kant. Indeed, it is usually regarded as synonymous with the liveliness or vivacity of which Hume has so much to say. But this admission strengthens rather than weakens the argument for the unique and irreducible nature of belief. For its only effect is to make more conspicuous the essential difference between the quantitative gradation in firmness or fixity, which is proper to belief, and the quantitative gradation in vehemence or vividness, which belongs to presentation and to desire.

It is worth noting that Brentano has omitted to take into account the existence of a quantitative aspect of ideas distinct from their presentational intensity. I mean what is called "distinctness" or "definiteness". Our thought of one and the same object may be more or less determinate. In any train of reasoning or of constructive imagination some identical object or topic is referred to throughout, and the whole progress of thought consists in making this reference more

determinate and discriminative. Suppose that the topic we start with is the nature of light. Suppose that at the outset we are ignorant of physical optics, and that we end by assimilating the contents of an ordinary text-book. This means that we begin with a vague and indeterminate idea of the nature of light, and end with one which is distinct and determinate. But this difference in the distinctness of ideas is obviously not to be identified with difference in the firmness of belief. We may be dubious concerning a proposition which possesses diagrammatic definiteness, and we may accept with confidence a proposition which is utterly vague.

(3) Brentano points out that mere ideas cannot strictly speaking be right or wrong. They do not possess any virtue or vice, if we may be allowed the expression, by reason of which they can be approved or disapproved of. Within the sphere of desire,—of love and hate,—it is otherwise. Here we find a distinction between the morally good and the morally bad. Similarly, in the case of belief there is a corresponding distinction between truth and error. This third argument is perhaps the most open to attack. But it would lead us too far out of our course to consider the objections likely to be urged against it. We simply give it for what it is worth.

In conclusion, we may say that the difference between believing and having an idea coincides with the difference between the question, Do you *understand* this proposition? and the question, Do you *assent* to this proposition?

§ 3. RELATIVITY OF THE DISTINCTION BETWEEN SIMPLE APPREHENSION AND JUDGMENT.

Nothing that has been urged in favour of the distinction between judgment and simple apprehension points to the existence of any moment in our conscious life in which the

element of judgment is entirely absent. What has been maintained is that we can think about specific objects without correspondingly specific affirmations or denials concerning them. We must now point out that there is no thought without some kind and degree of judgment. There are some objects which we cannot apprehend without at the same time affirming them. One of these is the self. I cannot think of my own existence, in so far as my existence consists in being conscious, without at the same time believing in it. This primary connection between thought and belief, as formulated by Descartes, forms the point of departure of modern philosophy. The same essential connection between judgment and thought is found in our apprehension of the world, or universe of reality. The existence of an object means for us that it has a place in the scheme of existence; that it forms a determination or qualification of reality in general. Unless the thought of this reality, however vague it may be, is at the same time an affirmation of it, no specific thought of a specific object is possible. Thus thinking is always inseparably connected with believing. The distinction between the attitude of belief and that of mere thought is relative. It is based on the fact that definiteness and distinctness in the apprehension of special objects need not be accompanied by affirmation or denial of these special objects as such.

It is especially important to note not merely that this distinction is relative, but also that it seems only to emerge in a comparatively advanced stage of mental development. Primitive mental life, so far as it involves objective reference at all, seems to consist wholly in sense-perception. But sense-perception normally includes affirmation of the object perceived. It is, in the language of Reid, "the conception and belief which nature produces by means of the senses".¹ If at this stage we are to maintain the distinction at all, we can

¹ Hamilton's *Reid* (eighth edition), vol. i., p. 318.

only do so in the manner of Hamilton. We may say that apprehension and judgment "are really one, as each involves the other, . . . and as together they constitute a single indivisible act of cognition; but they are *logically* double, inasmuch as, by mental abstraction, they may be viewed each for itself, and as a distinguishable element of thought".¹ But such a distinction can scarcely be said to have any psychological significance. At any rate, the comparative lateness of the divergence between the development of thought, as such, and the development of judgment, as such, constitutes a grave objection to Brentano's co-ordination of judgment with desire as an ultimate mental function. Another obvious objection is that, after all, the distinction between simple apprehension and judgment is a sub-division. The primary division distinguishes the cognitive attitude of consciousness from the conative and the pleasure-pain attitude. Belief and thought can only be distinguished as different constituents or aspects of cognitive consciousness. There is yet another circumstance which seems to invalidate the co-ordination of judgment and desire or pleasure-pain. If we suppose thought entirely to disappear and give place to anoetic consciousness, judgment seems also entirely to disappear without leaving any kind of anoetic experience specifically corresponding to it. Now, in a merely anoetic experience the absence of thought does not imply the absence of striving or of pleasure-pain. Desire, or the conscious direction of striving to an object, is of course impossible, *ex hypothesi*, but the mere experience of struggle or effort, activity free or impeded, may still remain. So, too, agreeable and disagreeable experiences may exist apart from objective reference. My consciousness may be agreeably toned by organic sensations of which I take no note. But it is difficult, and perhaps impossible, to point out any mode of anoetic experience corresponding in a similar way to belief.

¹ Note to edit. of *Reid*, vol. ii., p. 806.

Nevertheless, it remains true that the time-honoured distinction between apprehension and judgment, as specifically different modes in which consciousness may refer to an object, is an ultimate one, from the point of view of analysis, if not of genesis; and that it is of great importance in psychology.

CHAPTER VI.

FEELING AND CONATION.

§ 1. INTRODUCTORY.

WE have distinguished three fundamental modes of consciousness,—sentience, simple apprehension, and belief. All three are combined in every complete cognitive act as integral constituents of it. Thus, in separating these modes of being conscious from each other, we have analysed the cognitive function.

We now pass to the consideration of those functions which concern the volitional rather than the cognitive side of our nature. Every mental attitude which partakes of the nature of volition includes two fundamentally distinct modes of reference to an object,—(1) being pleased or displeased with it or with its absence, and (2) striving after it or striving to avoid it,—desire or aversion. This division does not correspond to that between the emotions and the *dē* as found in Bain and some others. Every emotion, such as fear, anger, indignation, etc., contains in intimate combination both feelings of pleasure or pain and feelings of desire or aversion. The will, as treated by these writers, is, for the most part, considered not in its intrinsic nature as a mode of being conscious, but as antecedent to certain consequences consisting either in bodily motion or in changes in the train of ideas.

The terms *feeling* and *conation*, first suggested by Hamilton to correspond with the German *Gefühl* and *Streben*,

as used by Kant and his successors, have been very generally adopted by exact psychologists who wish to draw a precise line of demarcation between the two modes of consciousness. The main objection against this usage is to be found in the somewhat inconvenient restriction of the application of the term *feeling*. In ordinary language we speak freely of feelings of desire or aversion, as well as of feelings of pleasure or pain. We talk of feeling reluctant or resolved, as well as of feeling satisfied or dissatisfied. Reserving this question of terminology for subsequent settlement, we shall provisionally adopt the Hamiltonian way of naming the distinction. The problem which immediately confronts us is whether the distinction is a real one. Before Kant it was not recognised as fundamental, and in recent times Brentano has abandoned it and gone back to the old Aristotelian division. A consideration of his analysis will not lead us to accept his results, but it will assist us greatly in gaining an exact view of the nature of the distinction between feeling and conation.

§ 2. BRENTANO'S ANALYSIS.

"Let us consider the following series: sorrow,—longing after an absent good,—hope, that it may come into our possession,—desire to procure it,—courage to make the attempt,—voluntary determination which issues in action. One end-term is a feeling, the other is a volition, and they appear to be separated from each other by a wide interval: but if we consider the intermediate terms and compare those only which are adjacent to each other in the series, do we not everywhere find the closest affinity and an almost imperceptible transition? If we are to draw a dividing line between feelings and strivings, how are we to distribute the several phases of consciousness under their proper heads? We say,

'I feel a longing,' 'I feel a hope,' 'I feel a desire to obtain this or that thing,'—but no one will say that he 'feels a determination of the will'. Are we then to fix the boundary line at this point, referring all the preceding parts of the series to the category of feeling?¹ If we followed the guidance of ordinary language, we certainly should settle the question in this way."² But closer consideration shows that common language here falls short of scientific accuracy. "There is a germ of conation in the longing after an object: in hope, this germ begins to unfold: the desire to procure the object and the courage to make the attempt are progressive stages in its development."³ Finally, when all counteracting motives are subdued, desire comes to maturity in the voluntary determination to act. It would thus seem that if we are to classify these several modes of consciousness, we must regard* each of them as constituting a separate division. But it is obvious that the distinctions on which such a partition would be founded are by no means of the same fundamental nature as that which separates simple apprehension from belief, or either of these from other modes in which consciousness refers to an object. Hence we are constrained to recognise the essential identity of feeling and conation.

The above is a faithful reproduction of Brentano's first line of argument, stated in great part in his own words. It may be added that in one respect he has somewhat

¹ Cf. *Reid's Works*, vol. ii., p. 531. "In the general division of our faculties into Understanding and Will, our passions, appetites and affections are comprehended under the will. . . . It is this, probably, that has led some philosophers to represent desire, aversion, hope, fear, joy, sorrow . . . as different modifications of the will, which, I think, tends to confound things which are very different in their nature. . . . The motives to action, and the determination to act or not to act, are things that have no common nature, and, therefore, ought not to be confounded under one name."

² Brentano, *Psychologie*, pp. 308-309.

³ *Ibid.*

underrated the strength of his case. He admits that it is not natural or usual to say, "I feel a determination of the will". But this is perhaps mainly due to the fact that in ordinary language we do not talk about "determinations of the will" at all. It is quite customary to say "I feel determined" to do this or that.

But is his explanation of the facts a necessary one? It is not difficult to show that his argument possesses no real cogency. A similar method of reasoning would lead us to deny any essential difference between blue and green, on the ground that one may pass into the other by insensible gradations through an intermediate series of blue-greens and green-blues. The assumption that each of the several phases of consciousness intervening in the psychological series between a sorrowful mood and voluntary determination to act must be referred either to the head feeling exclusively, or to the head conation exclusively, is entirely fallacious. There is another alternative. Both elements may be combined in varying ratios in the successive terms of the series, as is the case with blue and green in the blue-green series. Indeed, it may fairly be contended that this alternative is the only one reconcilable with the conception of a series of gradations, which are not gradations of the quantity of one and the same thing.

But, setting aside general considerations of this nature, let us examine the facts as we find them. In the case of grief, are we not able to distinguish between the mere feeling of sadness and an accompanying aversion either to some disagreeable circumstance or to our own condition at the time? Or if neither of these be present in any definite form, is there not at least a vague restlessness? When we pass to longing, the presence of two distinguishable components becomes more evident. To long after a thing is to desire it. The desire is called a longing, merely because it does not stand in any

direct and definite relation to external action. But the element of feeling, in its distinction from desire, is equally unmistakable. When we long for a thing, the want of it causes us some degree of dissatisfaction.

That feeling and conation are in this instance distinct from each other becomes more evident when we consider : (1) That they have, strictly speaking, different objects. We are dissatisfied, not with what we desire, but with its absence. (2) That of the two antithetic modes of feeling,—pleasure and pain,—the negative mode, pain, is for the most part exclusively, or, at least, predominantly present in the state of longing or craving ; whereas, of the two antithetic modes of conation,—desire and aversion,—the positive mode, desire, is either solely or predominantly present. In the case of hope, a similar consideration applies. The hopeful attitude, as such, is pleasing. But in so far as it is interfered with by intrusive doubts, pleasure gives place to its opposite. Now this fluctuation between pleasure and pain need not be accompanied by any corresponding fluctuation in the intensity of desire ; much less does it involve a transition from desire to aversion. Doubtless the pain is often connected with an aversion to the circumstances which appear likely to thwart us. But this aversion need not be at all prominent in consciousness, as compared with the positive desire which often becomes intensified when hopeful anticipation meets with a check. It is true, indeed, that in all such cases the negative phase of desire is, at least vaguely, present, as well as the positive. We feel an aversion to the conditions which thwart or hinder us ; but this negative aspect of conation presupposes the positive, and it is clear that the positive phase of striving cannot be identified with the positive phase of feeling, if an intense and definite desire can form the most prominent part of a total psychosis which is decidedly disagreeable. It should be added that there may be strongly marked pleasure when

conation is at a minimum, when, indeed, many psychologists would regard it as entirely absent. Examples of this kind are to be found in the pleasures of repose, in the languid enjoyment of a warm bath, and the like.¹

§ 3. NOMENCLATURE.

We may now return to the question of terminology. Undoubtedly Brentano is right in saying that such expressions as "to feel a desire," or "to feel an aversion," are in ordinary language quite as appropriate as the expressions "to feel a pain," or "to feel a pleasure". Indeed, the plausibility of his argument rests largely on the common application of the term "feeling" to both modes of being conscious. But if he had followed up this verbal clue thoroughly, it would have led him much farther than he proposed to go, for we can also speak of "feeling a sensation". Indeed, there is scarcely any application in which the word sounds unnatural in English, except when the conception of objective reference is abstractly considered. Thus we cannot say that we "feel a thought," and it sounds somewhat strange to speak of "feeling ideas" or "perceptions". Whenever we wish to

¹ Possibly Professor Brentano has been misled by an ambiguity similar to that which Professor Sidgwick points out in discussing Mill's statement that "desiring a thing and finding it pleasant are, in the strictness of language, two modes of naming the same psychological fact". Sidgwick comments on this as follows: "By pleasure we commonly mean an agreeable sensation not necessarily connected with desire or volition, as it may arise from external causes without having been foreseen or desired at all. But when we speak of a man doing something at his own 'pleasure,' or as he 'pleases,' we signify the mere fact of choice or preference; the mere determination of the will in a certain direction" (*Methods of Ethics*, 2nd ed., p. 37). Brentano seems to play with the word *Lieben* (liking), much as Mill does with the word "pleasure". Thus he says: "Wer das Gewollte als etwas was. Jemand lieb ist bezeichnet, hat dadurch schon einigermaßen und in äusserster Allgemeinheit die Natur der Willensthätigkeit gekennzeichnet" (*Psychologie*, p. 325).

indicate a peculiar mode of subjective consciousness as immediately experienced, we are almost irresistibly impelled to use the word. We may do so even when an objective reference is distinctly implied, if the point of interest is not so much that we are cognisant of the object as that we take up a certain subjective attitude towards it. It is for this reason that we speak of "feeling desire" for a thing, or of "feeling pleased" with it. Besides their reference to an object, desire and pleasure are specific modes of immediate experience, which might occur in a purely anoetic consciousness. A subject which could not think or perceive might still feel active or passive, pleased or pained. When thought arises, these modes of immediate experience become special modes in which consciousness refers to an object, but we nevertheless apply the term "feeling" to them, because we are interested not in the bare fact of objective reference, but in the peculiarly differentiated mode of objective reference, depending on the peculiarly differentiated mode of immediate experience. We therefore agree with Professor James in giving a very wide application to the word "feeling". We must however steadfastly refuse to make it cover sensation and thought indifferently, as he appears to do. Only two words have this wide range, and these are the word "consciousness," according to its traditional use in English psychology, and the word "experience".

There is no generic term in ordinary language which comprehends both pleasure and pain, and nothing besides. It is extremely inconvenient to give the word "feeling" this restricted application. But if we reject it we must find some substitute. Perhaps the best which has been proposed is "feeling-tone". This is especially convenient, because it enables us to speak of an experience as agreeably or disagreeably "toned". Mr. H. R. Marshall, in his work on *Pain, Pleasure, and Æsthetics*, has suggested a convenient nomenclature which

I shall freely use. Pleasure-pain is employed by him as a generic word to cover both pleasure and pain. He also coins the word "Algedonic" to supply the corresponding adjective. "Algedonics" he uses to signify theory of pleasure-pain. But "Hedonic" and "Hedonics" are already in use for this purpose, and are quite sufficient. "Feeling-tone" may conveniently be used along with "pleasure-pain," as it is especially apt and appropriate when we have to speak of the agreeableness or disagreeableness of this or that special experience.

§ 4. CONATION AND ATTENTION.

The preceding discussion has led us to regard striving as essentially distinct from agreeable or disagreeable feeling. We have now to investigate the range of conation and the interconnection of its multiform phases. The word "attention," if we consider its derivation, would seem to be a synonym of conation. It ought to mean "tendency towards an object". In ordinary language, however, we do not find that its application is by any means coincident with that of such words as desire or aversion. We may attend to a thing without wishing for it. How then are conation and attention related to each other? Is the distinction between them fundamental? If it is derivative, what is its precise nature? In answering these questions we shall be led to a more intimate and comprehensive view of the striving aspect of our nature.

Note first that attention is a mode in which consciousness refers to an object. This is true of it in the same sense in which it is true of desire and belief. In common language attending to a thing is equivalent to thinking of it. In this usage a theoretical distinction is overlooked, because it is devoid of practical utility. For the analytic psychologist, thought is "reference to an object" considered in the abstract; whereas attention is the direction of thought at any

given moment to this or that special object in preference to others. This "direction" is a mode of being conscious, and inasmuch as it is a direction of *thought*, it is a mode of being conscious with reference to an object.

But there is another aspect in which it can be regarded. It is not only a way in which consciousness refers to an object. It is also a mental activity. It is the direction of thought to an object; but this consists in maintaining and developing in consciousness the apprehension of that object to the relative exclusion of others. This causal efficacy of attention is not identical with its objective reference. For it is obvious that in attending to a thing we do not *act* on it. It may seem that in considering attention in its causal aspect we are deserting the standpoint of pure analysis, which is concerned only with the definition and distinction of modes and contents of consciousness, to the disregard of the changes through which the mind passes from one state to another in time. But it is the unique peculiarity of attention that in its case the two points of view are inseparable. In the case of attention, consciousness *is* agency. Further explanation and defence of this statement will be given in the first chapter of book ii.

Here it is sufficient to point out that, apart from psychological theorising, the thinking subject, as such, regards himself as active in determining mental change so far as he is attentive, and only so far as he is attentive. He never regards the suggestion of one idea by another as his own act. So far as the sequence of presentations is determined by association, it is determined *for* him and not *by* him. The associative connection of ideas is only an instrument with which his attention works. It is as independent of him as the existing physical conditions which he makes use of at any given moment to produce changes in his material environment. The less attentive he is, the greater is the relative influence of mere association, and *pro tanto* he appears to

himself to be passive rather than active. On this point I shall avail myself freely of the graphic statement of a half-forgotten English writer on psychology. "When a man coming off from a journey throws himself carelessly into an easy chair, and, being desirous of nothing but rest, falls into a reverie, what a variety of objects pass muster in his imagination! The prospects upon the road, occurrences happening to him, his acquaintance at home, their faces, characters, conversations, histories, what he has seen, what he has done, what he has thought on during his journey or at other times. His mind remaining all the while half asleep, for . . . the Will in a manner dozes, without preference of one thing before another, without attention to any particular part of the scene, but suffering all to come and go as it happens."¹ The mind in this indolent posture is not of course entirely inactive. But it is inactive by comparison to more strenuous attitudes of the conscious subject. At any rate, the illustration sets in strong relief the contrast between what merely happens, occurs, comes and goes, in consciousness, and what is due to subjective agency.

Let us now consider voluntary reflection, such as recollecting, studying, meditating, reasoning, deliberating, and the like, wherein the mind from time to time calls up the thoughts it wants. Here also the same antithesis is found. "Even here . . . the mind does not call up all our thoughts directly by its own immediate command, but seizes on some clue whereby it draws in all the rest. . . . Deliberation and investigation are like the hunting of a hound—he moves and sniffs about by his own activity, but the scent he finds is not laid nor the trail he follows drawn by himself. The mind only begins a train of thinking and keeps it in one particular track, but the thoughts introduce one another successively."² Therefore we compare a methodical thinker to "a man who

¹ Abraham Tucker, *Light of Nature*, vol. i., p 10.

² *Ibid.*, p. 11.

has a river through his grounds, which divides into a multitude of channels. . . . The water runs by its own strength, . . . and whatever he does to it will find a vent somewhere or other: he may turn, alter, or direct its motion, but neither gave nor can take it away. So it is with our thoughts, which are perpetually working so long as we wake; . . . we may control them, divert them into different courses, conduct them this way or that . . . but can never totally prevent them from moving.”¹ The flow of ideas is thus in every moment partly determined by us and partly by a “motion of its own”. We determine it only in the way of selective attention by fixing and detaining in consciousness ideas referring to this or that object to the exclusion of others. The result of the act of attending depends on other conditions—preformed associations and the like—which are at the moment independent of us. Our action in the physical world is similarly limited. We may apply a match to gunpowder, but the explosion which follows does not depend on us.

Attention is mental activity. But is it the only mental activity? Desire also is at least a tendency to action. It is a mode of consciousness which tends to bring into existence the object to which it refers. Conation and attention agree in having a dynamic aspect, and in the case of both this dynamic aspect seems to belong to their intrinsic nature as modes of consciousness. Desire would no longer be a desire if it were not immediately experienced as what Hobbes calls an “endeavour towards” the desired object. What, then, is the exact relation of these two modes of mental activity—attention and conation? We may attempt to distinguish them by their consequences. The work of attention, as such, is commonly regarded as lying within the circle of consciousness. Its effects are changes in the flow of ideas. Desire and aversion, on the contrary, tend to produce bodily action, and

¹ Abraham Tucker, *Light of Nature*, vol. i., p. 13.

when they culminate in voluntary determination, bodily action takes place as a consequence. But this distinction fails us. Mere concentration of attention on an idea is sufficient to produce movements, as, apart from other evidence, the achievements of thought-readers abundantly show. Again, when we try to recollect a name or solve a problem, or work out an argument, the desired object is attainable by a purely mental process. Lastly, the distinction, even if it were valid, would be merely extrinsic and accidental. Where muscular contraction begins the psychological series breaks off. The analytical psychologist is concerned with psychical activity, not with the physical changes it initiates.

Any specific activity must be thought of in relation to some result which it either maintains in existence or tends to bring into existence. This result is called the *end*¹ to which it is directed. Again, when we say that it is tending to realise its end, we may mean that the process of realisation is merely incomplete, without implying that its progress is impeded by obstacles; or we may mean that it is partially or wholly arrested by antagonistic conditions. A stone tends to fall to the earth when we hold it in our hand. It is also tending to the earth in the actual process of falling.

Now the only distinction which I have been able to discover between striving and mere attention in their dynamic aspect is the distinction between (1) the direction of mental activity to an end, and (2) the activity itself in the successive phases of the process through which the end is realised.

Let us verify these general considerations by applying them to particulars. We shall consider first desire and then aversion. The mere maintenance in consciousness of the thought of an object is not usually called a desire unless it is effected in opposition to difficulties which it requires some appreciable effort to overcome. Perhaps the closest approxi-

¹ The conception of an end will be discussed in the next chapter.

mation to this mental attitude is found in the case of attention to a simple object of sense or imagination, on account of the immediate pleasure it yields. An agreeable colour, or form, or perfume, may serve by way of illustration. It is usually said that æsthetic contemplation of the beautiful for its own sake is characterised by mere absorption in the object to the exclusion of ulterior aims and tendencies. It is, however, to be noted that simple attentiveness of this kind easily passes into what is recognised as conation by insensible gradations, and is never absolutely separable from it. The striving aspect of consciousness is prominent in proportion as the idea of the object is evasive and difficult to detain in the degree of distinctness required for its pleasure-giving effectiveness. Now this evasive character belongs more or less to all ideas. They tend to fade of themselves, and competing presentations constantly tend to displace them. The flow of ideas, as determined by association, is, as Abraham Tucker says, comparable to water, which runs by its own strength and struggles to find vent in a multitude of channels. To fixate ideas is like damming the stream, and involves some mental agency. Besides this, it must be noted that the work of attention scarcely ever consists solely in detaining one and the same idea in consciousness, unless we mean by the *same* idea an idea referring to the same object. In attending to anything we perhaps always, certainly almost always, develop our ideas of it, so that the thought of it becomes more and more discriminative and determinate. It is obvious that in this process the idea considered as mere content of consciousness does not remain the same. The identity which connects its successive phases is identity of objective reference. But this tendency to develop our idea of an object is a conation, and is recognised as such in ordinary language. If in contemplating a work of art we find that it takes time to realise its beauties and concentrate attention to that end, is not our

mental attitude one of endeavour? Are we not *trying* successfully or unsuccessfully to effect something by internal activity? If, besides taking time, the process involves mental tension because of the complexity of the object, no one would refuse to apply the term "conation" or "striving" to it.

Cases of this kind pass by insensible gradations into those forms of mental activity which are called methodical trains of thought. Let us take as an instance the endeavour to recollect in their order a series of names or occurrences. Here the desired end is the mental reinstatement of the whole series, and this end is an object of attention throughout the process. The steps of the process are the successive acts of attention, by which the idea of this end becomes more determinate as one member after another of the series emerges. As this goes on, *pro tanto* the end ceases to be an end, and becomes an achievement.

It often happens that such trains of thought come to a standstill because of difficulties. Reminiscence may be arrested by the failure to recall a name. A train of reasoning may be interrupted by the emergence of contradictions or by want of data. When this happens, attention, being hindered in its progress, becomes concentrated at the point of the ideal series where the obstruction is encountered. This concentration of attention is at the same time an intensification of desire. It is also generally felt that the words "striving" or "conation" can be applied with special appropriateness in such cases, because they involve marked strain or struggle against resistance.

The devisal of means for the production of change in the external environment is an internal activity quite analogous to trains of theoretical reasoning. The ultimate end aimed at is either the result in the external world, as anticipated in thought, or some sensory experience, which is looked forward to as a consequence of the external change.

An example of the second group of cases is the desire for

food, which can only be satisfied by the actual experience of eating. An example of the first group is afforded by a man at the point of death making a will. In this latter instance satisfaction is found merely in the belief that the desired external effect has been or will be attained. In both cases satisfaction is found in a certain state of consciousness. If this state of consciousness can arise without the external change actually taking place, the striving has not the less reached its psychological end. There may be a legal flaw in the will which makes it worthless, but if the testator is ignorant of this, he is none the less satisfied. Thus in all practical desire the end is a state of consciousness. The active process of achievement is also mental in essentially the same way as a train of reasoning connected with purely intellectual interests. When devisal of means to the desired end is required, this constitutes the first stage. It consists in the gradual completion of an ideal series, in which we represent a train of events in the physical world leading to the desired result. Here the obstacles to activity are not merely confined to those conditions which determine the transition from one idea to another. Any circumstance connected with the actual posture of affairs in the external world itself will constitute such an obstacle when and so far as we become aware of it; we may say with Spinoza that whatever is thought of as hindering the body's power of acting, hinders the mind's power of thinking, *i.e.*, devising means for practical ends. The end desired may be really unattainable; so much so that means for its attainment cannot be devised. In this case we have a mere impotent wish, yearning, or craving, such as the wish to undo the past. When this is so, the difference between such a mere longing and an effective desire, or one with a prospect of being effective, is not essential; it does not lie in the state itself as a mode of consciousness, but in the presence or absence of other con-

ditions. Such wishes, therefore, are truly strivings, though doomed to perpetual inefficiency.

After the means to the desired end have been thought out, the second stage commences,—the execution of the movements which are regarded as capable of producing the intended result. Here is added a new group of conditions extraneous to the mental activity itself; but this in no way alters the nature of that activity. While the mental striving took the form of a mere train of thought, its efficacy was conditioned by preformed associations, etc. In the executive stage it is also conditioned by the organic apparatus for movement, and by the properties of external things. But so far as the process is a conscious process, it remains essentially the same in character. The immediate antecedent of movement is attention to the end to be attained, and to the means of attaining it. If a physical obstacle obstructs action, the mental striving is obstructed much in the same way as it would be by the failure to recall an idea.

We have said that the immediate antecedent of action is attention to the end, and to the means of its realisation. This is true in the case supposed; for we have tacitly assumed that the resolution to act has been present from the commencement of the process,—the devisal of means to end and the actual execution being merely stages in carrying out the preformed determination. We must now face the question, Wherein does this determination itself consist? Is it also a mode of being attentive? We answer this question in the affirmative. But there is some difficulty in fixing the precise modification of the attentive attitude which constitutes a voluntary resolution to act. The case is indeed clear where there is no inward conflict of opposing impulses. Where the striving has the field all to itself, its mere existence suffices to determine action, so far as action is possible. But where there are opposing tendencies, attention to one end can only be effective in

initiating action with a view to that end, if it has acquired a certain kind or degree of predominance over the mental activity which is directed towards the competing end. Our problem is to assign the precise nature of this predominance. Clearly it does not consist merely in the vividness and intensity of an idea. The vividness and intensity of an idea may, indeed, initiate bodily action ; but cases in which it does so are by no means always cases of voluntary determination. So-called "mind-reading" supplies an instance in point. The subject of the experiment thinks fixedly of a given object ; the consequence is that incipient muscular movements reveal to the thought-reader the direction in which he is to search. Here action follows upon attention ; but it is non-voluntary, and in many instances the reverse of what is willed. The same holds good wherever action follows from the obsession of the mind by a fixed idea, as when a man throws himself over a precipice or under a railway train, because of the intense vividness with which the idea of the action and its consequences obtrudes itself into his consciousness. On the other hand, the idea which initiates voluntary action need have no peculiar degree of vivacity. On the contrary, the forming of a voluntary decision, after internal conflict, is usually accompanied by a subsidence of mental excitement,—a calm after storm ; and the more fixed and irrevocable the decision, the more composed does the mind become.

In this feature of voluntary action, we find the key to its nature. It arises out of the conflict as its final issue. It is the mental state which emerges when the process of conflict ceases, because it has worked itself out to a definite conclusion ; it is the relatively stable condition which follows on previous instability, as a consequence of the restoration of equilibrium. It is otherwise with action from a fixed idea, which realises itself through its mere isolated intensity ; such action may take place in the very midst of conflict, in opposition to

strivings which tend to counteract it ; or, again, it may take place because the conflict has been temporarily suspended. Thus where a man yields to the fascination of a precipice, he may throw himself over in spite of reluctance amounting to shrinking terror, or he may do so in a moment of negligence, when opposing motives are, for the time being, comparatively in abeyance. The movements which betray to the thought-reader the direction of a hidden article, come under a different heading altogether, and are still more remote from voluntary action. They do not arise from attention to the end which they realise ; they are merely a collateral, and, so to speak, incidental result, of attending to something else. There is no felt impulse to betray the secret hiding-place, as, in the other case, there is a felt impulse to fling oneself over the precipice.

The mental attitude of voluntary decision is distinguished and characterised by the dependence of the act on the *belief* that we are going to perform it. The predominance of the idea of the end must be of such a kind as to involve the mental affirmation that our action will be directed to its attainment. The mere vividness of the idea is of comparatively little significance. If the tendency to the contemplated line of conduct has so far triumphed over other tendencies as to leave the definite conviction that this is the line we shall follow, it matters not whether our apprehension of what we are about to do be faint or intense. On the other hand, the fixed idea produces action only by its exceptional vivacity. If the belief that the action is going to take place is present at all, it is a subordinate consequence of the felt vivacity of the isolated impulse. The state of belief does not in this case determine action, but arises because we feel that action is already otherwise determined.

§ 5. DISTINCTION BETWEEN DESIRE AND AVERSION.

We have now to consider the negative and positive phases

of conation, in their relation to attention. Both desire and aversion, endeavour to and endeavour from, are modes of being attentive. Whether we are hating a thing or loving it, we concentrate our thoughts upon it. How do the two mental attitudes differ? It would seem that in all cases aversion involves impeded activity,—the thwarting of a positive tendency. When and so far as the obstruction is not merely an anoetic experience, but includes the thought of a definite object, that object is an object of aversion. Let us take, by way of illustration, some common uses of the word,—*e.g.*, aversion to a person, to a study or pursuit. One of the commonest modes in which we conceive aversion to a person is when we are thrown into daily intercourse with him, so that we have to attend constantly to his thoughts, wishes, and actions, although our whole mode of thought and principles of conduct, our ideas and purposes, are so widely disparate from his that it is difficult or impossible to find a common interest. What is called “incompatibility of temperament” between husband and wife in many cases agrees with this description. The result of such a situation is moral and intellectual stress and strain; the thoughts, the words, the actions of each are merely clogs and incumbrances of the thoughts and words and actions of the other. Mere irrelevancy without direct opposition is quite enough to produce this result. The painter absorbed in his art and artistic ideas finds himself crossed, thwarted, and repressed by a wife who teases him with details of domestic life, and of her little personal vanities and social ambitions, although no direct cause of quarrel may arise between them. Where the one looks for sympathy from the other, the mere absence of sympathy is quite enough to hinder the free development of his nature. Direct opposition may be a more favourable condition than the mere absence of common interests. All depends upon the nature of the

opposition. It may be such as to involve an underlying community of ideas and sentiments ; when this is so, the collision of two minds may do more to stimulate than to repress. The conflict may serve as an occasion for each to develop more fully and vividly their own views and aims, and the result may be the correction of the one-sidedness of each by intercourse with the other, so that the progressive expansion of both minds is the consequence. When, on the other hand, the opposition involves no mutual understanding and no striving after a common end, a dead strain must ensue which is felt as a mutual aversion. There is a class of instances in which we take an aversion to a person perhaps at first sight, without being able to account for it. "I do not like thee, Dr. Fell ; the reason why I cannot tell." Without attempting to trace such dislikes to their ultimate source, it is sufficient to say here that for whatever cause we feel oppression and constraint in the presence of the object of our distaste ; we are not at our ease ; our thoughts and conversation do not flow freely in his company. Wherever this is so, aversion is felt, if and so far as we refer the constraining and oppressive influence to the character of the person, and not merely to the circumstances of his position, social standing, and the like.

A pursuit to which a man is feeling an aversion is one which, at the moment, thwarts and crosses other felt tendencies. His mental activity constantly tends to take other lines of direction, and his present occupation is therefore felt as a restraint and obstruction. The lawyer's clerk who goes on with his copying when the master's eye is on him, and scribbles verses when he is unobserved, is a case in point. Aversion is here, obviously, enforced or constrained attention. Precisely in so far as attention is constrained, so far is aversion felt.

Are we then justified in laying down the general thesis

that aversion is always identical with constrained attention, and that all constrained attention, as such, is aversion? If we are to do so, the term *aversion* must be enlarged in scope beyond the limits of its popular acceptation. In ordinary language it is applied mainly to dislikes and distastes and reluctances which have a certain degree of intensity and permanence; for our purpose it must be made to cover even the most transient and the faintest repugnance to, or endeavour from, an object. If a person for whom we have a strong and rooted affection happens, in a passing moment, by a single sentence, or by a look or gesture, to run counter to the drift of our own minds, then for the time being there is an element of aversion in our mental attitude, however faint and evanescent it may be, however inconspicuous a part it may play in our total psychosis. This extension of meaning is of a kind which is everywhere legitimate and necessary in psychology. For ordinary purposes it is sufficient to mark off by a distinctive word only the more conspicuous and important instances of a psychical phenomenon; for scientific purposes it is necessary to include under one head all instances which show themselves on analysis to have an identical factor. Along with this extension of meaning there must also go a certain limitation. It is common to say that a person has an aversion for a thing, when he is not really feeling any aversion at all, when, indeed, he may not even be thinking of the thing. Thus, if I say that W. has an aversion to mathematics, I need mean only that if he attends to mathematics at all he will do so under some kind of constraint; I need not imply that he is actually attending to it. From our present point of view it would be more appropriate to say that he is predisposed to dislike mathematics. The aversion itself only exists when it is being felt.

After this preliminary explanation we may now proceed to vindicate our thesis by a more systematic examination of the facts. The best mode of effecting this will be by considering in turn the various ways in which attention may be coerced or constrained. The first and simplest case is that of disturbance arising from the immediate physical environment interrupting a pre-existing flow of ideas by mere irrelevancy. A barrel organ begins to play in the street while a man is sitting in his room composing a poem or a piece of music. This mode of enforcing attention requires no comment. Nor need much be said about the constraint which arises from the limitation of our practical activities by unfavourable conditions in our physical and social environment. Obstacles which bar the achievement of our practical ends are thrust upon our attention simply because they lie in the line of direction of the mental activity, which intervenes between the initial phase of conation and its ultimate satisfaction. There is a physical analogue in the actual obstruction of movement in a given direction, as when a man is walking towards a certain destination, and finds his road barred, or attempts to open a door and finds it locked. All such physical obstacles are mental obstacles too, in so far as we are aware of them, either in ideal anticipation or in actual perception. The constraint put upon our mental activity in being forced to attend to them is greater in proportion as the striving which they confront and impede is strong and intense. The case of a man cast on a desert island affords a comprehensive instance of this kind of constraint. All his social tendencies are repressed, and so far as this is so he hates his condition. Defoe has developed this point with great psychological insight in *Robinson Crusoe*. Throughout this whole class of instances the aversion to or "endeavour from" the obstacle which lies in our way is obviously the form which the desire for or "endeavour towards" the end of action must necessarily take. Struggle

towards the end is *ipso facto* struggle to avoid, evade, or destroy the obstacle.

Much more difficult is the case in which a sensible impression gives rise to aversion, through its mere painfulness or intrinsic disagreeableness, irrespective of any disturbance or interruption which it tends to produce in the pre-existing direction of mental activity. It is true that our formula holds good here also; attention to a toothache is certainly enforced attention, and it is also aversion. But it would seem that the constraint does not constitute the aversion, but rather presupposes its existence. First comes the pain, then, as a consequence, the mental recoil, or "endeavour from" the painful impression. The constraint appears to follow on this pre-existing aversion. The movement of attention considered as mental activity tends to turn away from the painful object, and to exclude it from consciousness; but the violence of the stimulation arising from the diseased tooth arrests its free flow and holds it fixed. On this view the aversion precedes and conditions the restraint put upon mental activity, and cannot therefore be identified with it. Before admitting, however, that we have here a real exception to our general formula, we must raise the question, How does the primary aversion arise? The answer depends on the general theory of the conditions of sensory pleasures and pains. In the above statement it is assumed that the pain comes first in order of time, and that the "endeavour from" the painful object follows it. But there is another alternative, at least equally consonant with all that introspection tells us, which would bring this kind of aversion into line with the other kinds, which can be more distinctly analysed. We have only to assume that bodily pains, like mental pains, are coincident with impeded mental activity. For this assumption abundance of evidence exists, which will be expounded in its proper place. Here we can only say that the obstruction con-

sists in an interference with the general conditions of brain action ; the brain is disturbed and thrown out of gear just as the other vital organs are. The stimulus at once excites it to action and obstructs its activity. If this account be true, the constraint put upon psychical activity is the aversion felt to the painful impression. The pain neither precedes nor follows this felt aversion, but accompanies it, as its appropriate hedonic tone. This view we shall provisionally adopt, postponing its full vindication until we come to treat specially of the conditions which determine pleasure and pain.

A third class of instances is supplied by the aversion which accompanies the mere anticipation of painful experiences. This is partly due to the renewal of disagreeable feeling directly involved in the ideal reproduction of painful impressions. But this is not the sole factor, and in some cases it is quite inconspicuous. We must also take into account the revival of the active tendency to avoid or escape the conditions which have once been painful. This excitement of the conative disposition, which was formed on occasion of the actual pain, may not be conditioned or attended by any proportionate recurrence of the pain itself. The ideal anticipation of the painful circumstances at once rouses and thwarts the endeavour to avoid or escape them, and this thwarted endeavour constitutes the aversion. The mere remembrance of impressional experiences which have been painful has not the same effect as the expectation of their recurrence. The "endeavour from" them is satisfied by the awareness that they are mere memories—things of the past. This in itself is a direct source of pleasure. "*Haec meminisse juvabit.*" Where the reminiscence is painful it is because the revival retains in some measure the intrinsically painful character of the original experiences.

It is important to notice that the aversion which accompanies sense-pains and the anticipation of them may constitute

an obstacle to the achievement of practical ends. Practical activity, both mental and physical, is impeded by the painfulness of the steps which conduct towards the desired goal, as well as by mere absence of the necessary conditions, or the presence of external hindrances.

We now pass to the constraint put upon mental activity not by environing conditions, but by conflict between one mental tendency and another. The simplest illustration is to be found in purely theoretical processes, as when in a train of thought we are arrested by a doubt or an apparent contradiction. The stronger our interest is in the problem to be solved—the more powerful our desire to solve it—the keener is the reluctance and repugnance accompanying our apprehension of the theoretical difficulty which stays our progress. The hindrance is due to the conflict of opposing tendencies. Doubt arises when the line of direction of mental activity, so to speak, forks, opening out two or more courses, though only one can be followed. As there is a tendency in all the diverging directions, the result must be mutual interference and antagonism. The more nearly equal in strength the competing tendencies are, the more complete is the doubt or suspense. Whichever course is actually followed, is followed with a certain degree of reluctance. In the case of apparent contradiction, the antagonism obviously lies between the tendency to assert *A*, and the tendency to assert not-*A*. When we turn from the theoretical to the practical field of action we find the facts somewhat more complicated. Aversion to an uncongenial pursuit may supply a typical example of one main group of cases which come under this head. The aversion is actually felt only in so far as the uncongenial pursuit is in some manner enforced in opposition to the tendencies which are hostile to it. Now the enforcement seems to have its principal source in some other more imperative tendency. No man will pursue a course of action

repugnant to him, unless he has a sufficiently powerful motive. Sense of duty to his family, or the desire to repay a debt, may lead a man to follow commerce, although his tendencies are predominantly literary. Now we are here confronted with a difficulty. If, in following commerce, the man is satisfying a more imperative demand of his nature than he would be in neglecting it for the literary life, how is it that he feels an aversion for it rather than for the literary career, which by its attractions interferes with the free realisation of the stronger tendency? If the striving after *A* and the striving after *B* are antagonistic and impede each other, we should, according to our general theory, expect both *A* and *B* to be objects of aversion; and we should expect the aversion to be stronger in proportion to the strength of the conation which is obstructed, as well as in proportion to the degree of obstruction. Why, then, in the case supposed should aversion be felt almost exclusively for the pursuit which gratifies the more imperative tendency? The answer is to be found in the distinction between the strength of a tendency as determining conduct, and the degree of prominence which this tendency possesses in consciousness. That this is a real distinction becomes obvious when we consider the fact of habit. The more thoroughly habituated we are to acting in certain ways, the stronger does the disposition become so to act. At the same time, the disposition ceases more and more to occupy consciousness; it becomes more and more automatic, requires less and less attention. This forms part of the solution of the present problem. To fulfil the ordinary and obvious duties of life is, with respectable members of society, a mere matter of course. It only becomes a clearly conscious striving when and so far as it meets with opposition. Now the main point which we wish to emphasise is that in the case under discussion this emergence into full consciousness would happen *only occasionally*. In the ordinary course of

business the man's mind would be occupied with business details, which, as such, have no intrinsic connection with the idea of duty. This may be the mainspring of his action, but in the ordinary course of his daily life it tends to recede into the background of consciousness. It is only under exceptional conditions that it becomes explicitly attended to. If at any time the man's literary proclivities lead him to serious neglect of business, his conscience becomes awakened. The underlying impulse emerges into full consciousness; but, when this happens, there emerges also for the time being a distinct aversion to the object he has strayed in pursuit of, or at any rate to himself for being misled by it. To complete our explanation, it is needful to point out that there are certain tendencies, including the literary and artistic, which cannot become automatic, and fall into the background of consciousness, as the disposition to fulfil ordinary social duties is apt to do. All depends on the degree in which the conscious pursuit of the means to an end is separated from the conscious pursuit of the end itself. In composing a poem, the several stages of its production are not merely external means for the attainment of an end having no intrinsic connection with them; they are part and parcel of the end itself; they are the object aimed at in the process of growth. On the other hand, when we adopt a course of action for the sake of duty, it may well happen that the persistent concentration of the mind on ethical considerations will do more to hinder than to help. If I turn stockbroker in order to support my family, I must, in order to effect my purpose, attend to the details of stockbroking, and not to my primary end. Where conflict arises between fully conscious lines of direction of mental activity, both the rival ends become objects of mingled desire and aversion. The struggle between love and jealousy in Othello may serve as an example. It is hateful to him to kill his wife, because he loves her; it is hateful to him to let her live,

because he finds this irreconcilable with his sense of outraged honour. So he desires to kill her, in so far as he is jealous ; he desires to do her no harm, in so far as he is in love.

Sufficient has now been said to enable the reader to apply the general principle for himself to cases which may not have been directly referred to. In conclusion, we must lay stress on the necessity of interpreting the word *constraint* in the strictest manner. It must not be identified with mere determination by external conditions ; such external determination is constraint only if and so far as it crosses or thwarts the direction of inner activity towards its end. Constraint in the strict sense may arise from the mere absence of external stimulation as well as from its presence. Thus mental activity is obstructed by darkness cutting off the sensory impressions which ordinarily condition it.¹

¹ The reader is advised to return to this chapter when he has finished reading chap. i. of bk. ii.

BOOK II.

MENTAL PROCESSES.

CHAPTER I.

THE CONCEPT OF MENTAL ACTIVITY.

§ 1. EXPLICATION OF THE CONCEPT.

THE foregoing account of conation and attention may have aroused resentful impatience in the critical reader. In almost every sentence of it a word recurs which so often serves to conceal absence of meaning that it may be reasonably regarded with suspicion, and subjected to rigid examination wherever it appears. The current use of the word *activity* in the literature of philosophy is, according to Mr. F. H. Bradley, a "scandal". His complaint is certainly well founded, and we feel it to be a duty to do what we can towards the removal of this stumbling-block. We shall attempt to show that the term, as it is employed by us, conveys a meaning which is capable of being definitely exhibited and dissected. If any feature of the conception is ultimate and indefinable, we are bound at least to locate this feature accurately,—to point it out in such a way that everybody may verify its existence by an appeal to his own experience.

Mr. Bradley says: "The element in the meaning of the word which comes to light at once, is succession and change. In all activity something clearly becomes something else. . . . We can of course *talk* of a power sustaining and producing effects, which are subordinate and yet not subsequent ; but to

talk thus is not to think.”¹ To me this is as evident as it is to Mr. Bradley.

Throughout this work, whenever the word *activity* is used, the reference is to a process in time, if and so far as the process possesses a certain characteristic. It is now our business to show what this characteristic is.

The popular use of the word *active* is roughly coincident with the popular use of the word *cause*. Among a group of factors which concur in a process leading to a certain product, agency is attributed to that which for whatever reason seems to play the most important, impressive, or interesting part. A man run over and killed by a passing train may have been standing on the line by accident, or he may have deliberately placed himself there with a view to suicide, or he may have been pushed there at the critical moment by another person. In the first case we should probably say that the train killed him ; in the second, that he killed himself ; and in the third, that the person who pushed him was the agent of his destruction. If he placed himself in front of the coming train in consequence of the ill treatment to which he had been subjected by some one else, we might doubt whether to regard the event as a suicide or as a murder. It is obvious that this mode of regarding agency is unscientific, inasmuch as it depends on the point of view which happens to be taken by the external observer. Where scientific explanation is required, each of the contributory factors concerned in a process must be regarded as active precisely in so far as it determines the nature of the result. Are we then to consider *activity* as a mere synonym of *causality* in the scientific sense ? If so, it would obviously be better to discard it as a technical term altogether, and to confine ourselves to such words as *antecedence* and *consequence*, *cause* and *effect*. The use of a technical expression can only be justified when it conveys a quite specific meaning.

¹ *Appearance and Reality*, p. 63.

A specifying mark is supplied in a distinction which is of great importance when we are dealing with organic or with mental process,—the distinction between immanent and transitive causality,—or rather between causality in so far as it is immanent and causality in so far as it is transitive. Causality is transitive in so far as anything gives rise to effects which lie outside its own being. So far as the effects to which it gives rise fall within its own being, its causality is immanent. A cannon-ball is transitively causal when it takes a man's head off: for it is the man, not the cannon-ball, which is beheaded. When a man commits suicide or gets drunk, he himself is affected by his own action; the process begins and ends in himself: so far as this is the case his causality is immanent rather than transitive.

Now, it would seem that in ordinary usage the word *activity* is felt to apply with special appropriateness to those cases in which the return of a causal process upon itself is especially prominent or important. To quote Mr. Bradley: "Activity seems to be self-caused change. A transition that begins with, and comes out of, the thing itself is the process where we feel that it is active."¹ Thus the life and growth of organisms are specially appropriate examples of activity; for such processes are in a large measure immanent or self-determining.

When psychologists use such phrases as mental or subjective activity with a definitely restricted application, they always have in view some kind of self-determination. Whatever else they may intend to imply, this at least is an obvious part of their meaning. Our first duty, therefore, is to clear up this point by examining the conception of self-determining process with special reference to changes within the sphere of an individual consciousness. Our most convenient point of departure lies in such illustrative analogies as may be derived from a consideration of what takes place in the physical world.

¹ *Appearance and Reality*, p. 64.

We shall then be in a position to take account of any residual characteristics which may be peculiar to psychical, as opposed to physical, self-determination.

The terms *force*, *energy*, *strain*, *resistance*, etc., are constantly recurring in common speech in reference to the behaviour of material things. As they are applied in popular parlance, such terms have a somewhat vague and enigmatic meaning. They seem to imply, in addition to the actual sequence of physical occurrences, an imperceptible *something* which underlies the process and *enforces* the phenomenal sequence.¹ For the purposes of the man of science, this notion of an immaterial enforcement of material occurrences is entirely futile and irrelevant, and he is sometimes forward to condemn it as intrinsically baseless and absurd. We shall have occasion to take up this point again in the sequel. But for the present we shall consider our problem from the purely phenomenal point of view, discarding the implication, whatever this may be, which attaches to the term *force* in its unscientific application.

The simplest form of self-determination in the material world, regarded from this purely phenomenal standpoint, is that which finds expression in the law of inertia. According to this principle, the mere fact that a particle is moving with a certain velocity in a certain direction, is in itself a reason why it should continue to move with the same velocity in the same direction. Thus, in the words of Karl Pearson, "the more completely we separate one corpuscle from the influence of a second corpuscle, the more and more nearly does its motion relative to the second corpuscle cease to vary". Now, in so far as continuance of change in a certain direction is traceable to the pre-existence of change in that direction, the whole process may be regarded as being in a perfectly intelligible sense self-determining. The fall of a body to the

¹ Cf. Karl Pearson, *Grammar of Science*, pp. 140, *seq.*

earth may at any moment be regarded as self-determined, in so far as it is dependent on pre-acquired momentum, as distinguished from the progressive increments of acceleration due to the earth's attraction. Certainly there is nothing mystical or vague in this form of self-determining process. It is stated in terms of phenomenal antecedence and consequence, and it assumes nothing but the second law of motion. What significance, if any, has this conception of momentum when it is applied to the process of conscious experience?

Throughout the flow of conscious states we can in every stage distinguish between determination from within and determination from without; and it is a point of vital significance that this distinction coincides with that between mental activity and mental passivity. The stream of consciousness, though its course is perpetually controlled and restricted by extraneous conditions, has nevertheless a current of its own. The incessant change which is essential to the very existence of conscious life always possesses some degree of momentum. It is always in some degree self-sustaining. This is an indispensable part of the connotation of all such words as *activity, endeavour, conation, effort, striving, will, attention*. All these terms imply that the process to which they refer tends by its intrinsic nature in a certain direction or towards a certain end, and that apart from the end to which they are directed they can neither exist nor be conceived. Whenever we speak of mental activity, at least part of the meaning which we intend to convey is that process in consciousness is traceable to previous process, as, under the law of inertia, the continued motion of a body is traceable to its pre-acquired momentum. By way of illustration, we may compare two cases in which the degree of mental activity as contrasted with mental passivity varies in a marked manner. Sitting in a railway carriage, I observe the scenes which in

rapid succession displace each other within the field of vision. So far as the sequence of perceptions depends on movement of the train, the flow of consciousness is passively determined. So far as this is the case, there is no reason within consciousness itself for the transition from the sight of one object to that of another. Of course I am by no means wholly passive in the matter. The course of events within consciousness would be quite different if I were not attending to the scenery, and the special direction of my attention as dependent on my interest largely determines the points which are noticed to the exclusion of others. But the activity involved is obviously of a lower grade than that which is exemplified in a train of reasoning, or a systematic effort to recollect a series of events. In such cases we deliberately seek for a certain series of ideas, and their occurrence depends upon our conscious endeavour, as well as on the preformed associations and other conditions which lie outside the sphere of consciousness.

[Mental activity exists when and so far as process in consciousness is the direct outcome of previous process in consciousness. In this essential point it corresponds to physical momentum. But the analogy entirely fails if we attempt to push it farther. There are three conspicuous points of contrast. (1) Momentum in its typical form consists in the uniform persistence of the same rate and direction of motion. But the flow of conscious activity involves transition from one state to another. This will become clearer when we consider the second point of contrast. (2) In the mere self-perpetuation of the same uniform motion there is no direction towards an *end*. While process towards an end is actually going on, the end is not yet attained. With the attainment of the end the process itself terminates. In the limiting case where process and end coincide, as in the self-perpetuation of uniform motion, the essential characteristic constitutive

of the conception of an end has disappeared. On the contrary, in mental striving there is a tendency towards a state which remains relatively unrealised so long as the conation continues. (3) The self-determination exemplified by physical momentum, abstractly considered, is *purely* immanent. With mental activity it is otherwise. Mental tendencies move towards their satisfaction by means of trains of physical occurrences not comprised in the complex of neural processes forming their own immediate physiological correlate. Their immanent causality includes transitive causality. The general schema of this kind of self-determination is as follows: A process *A*, having a distinctive character and individuality of its own, initiates a series of changes *B*, which fall outside of its own existence; these changes in their turn react on *A*. *A* thus determines itself by means of *B*. So far as this general formula goes, the resulting modification of *A* may be of any kind. It may even consist in the destruction of *A*. But in the case of psychical activity, and indeed of all activity properly so called, the indirect self-determination must also be self-maintenance or self-development. *A* is a process directed towards an end, and the re-entrant series *B* must react on it so as to conduce to the attainment of this end. *B* is a means through which *A* works itself out.

Is it possible to find a mode of physical self-determination which (1) includes transitions between different states instead of being merely the self-perpetuation of the same state; (2) is directed towards an end so as to cease of itself when the end is completely attained, but not otherwise; (3) is indirectly as well as directly self-sustaining and self-developing? Conditions (1) and (2) are satisfied by the conception of recovery from disturbance of equilibrium. Whether (3) also is satisfied depends on the constitution of the material system concerned, and the nature of the displacement which takes place within it. Environing conditions remaining constant, every material

system tends to settle into a state of stability—a state in which no alteration will arise unless it be initiated *ab extra*. Now suppose that, at a given moment of time, a system in this stationary condition suffers a disturbance, and that the disturbing force is then withdrawn. There will ensue a series of changes which, in the absence of further interference from without, will terminate in recovered stability. These changes will partly consist in readjustment within the system and partly in readjustment to environing conditions. But whatever share the environment may take in it, the process is self-determining in so far as it follows on a loss of balance and is directed towards recovery of balance. But the self-determination is different in kind from that which is involved in mere momentum. It is a series of changing states instead of being the mere self-perpetuation of the same state. There is also an end to which it is directed—equilibrium. So long as this end is not attained, the process goes on spontaneously; when it is attained, the process ceases.

In so far as equilibration involves interaction with environing matter, there is scope for what we have called indirect self-determination. In living bodies equilibrium depends on certain specific processes of this nature. Vital function is perpetually sustained by interaction between organism and environment, and this interaction, so far as the organism takes part in it, is itself the discharge of vital function. We need here only take account of the re-entrant series of changes on which nutrition depends. Organisms live because they eat, and they eat because they live. In order to maintain their existence and to grow they must select, appropriate, prepare, and assimilate foreign material, and all these processes in the manifold forms which they assume are modes of organic life. The re-entrant form of series also presents itself when we consider the relation of the different vital functions to each other and to the whole of which they

are parts. Each special group of organic processes,—respiration, circulation of blood, secretion of bile, and so forth,—depends on all the rest, so that each, in contributing its share to the maintenance and furtherance of the rest, furthers and maintains its own being.

The processes immediately connected with nutrition rather subserve the maintenance of a state of equilibrium already established than the reattainment of equilibrium after disturbance. If they are conditioned by changes in the environment, these changes occur regularly in a uniform manner, and are met by a correspondingly uniform and regular mode of reaction. Adaptation to irregularly varying conditions is distinctively the office of the central nervous system; the nervous processes through which this takes place are the distinctive physiological correlates of consciousness. Consciousness is more complex and intense in proportion to the complexity and intensity of the required readjustment. Here, then, we have found more than we sought. We set out to seek physical analogues of mental activity; we have found a process not merely analogous to it, but actually correlated with it as its immediate physiological concomitant. The passive side of consciousness has its counterpart in the disturbance of neural equilibrium *ab extra*—*e.g.*, through stimulation of the sense-organs, or through stimulation of one part of the nervous system by another. The active side has its counterpart in the spontaneous tendency to recover from the disturbance in certain more or less specific ways predetermined by the innate and acquired constitution of the nervous system. These special modes of reaction have been called by Richard Avenarius *vital series*. Whatever forwards a vital series is conducive to pleasure; whatever hinders it is a source of displeasure.

The flow of conscious states is so correlated with corresponding brain-processes that whatever is a condition or

consequence of these processes may for psychological purposes be regarded as being, *ipso facto*, a condition or consequence of the corresponding conscious changes. From this point of view it becomes evident that the modes in which the current of consciousness indirectly determines and sustains its own flow are many and multiform. In the first place, the psychological changes involve trophic processes. They cannot go on without wear and repair of brain tissue, which involves a continuous interchange of material between this tissue and the blood in the capillary vessels. Now it is a general principle that the supply of blood to any part of the organism tends to be adjusted to the need for it at any moment, and this depends on the amount of work which it is doing, and the consequent waste of tissue which is going on in it. We have no reason to suppose that the brain forms any exception to this rule. Thus one of the modes in which the process of consciousness reacts upon itself by determining organic change is to be found in the influence which it exercises on the flow of blood to the brain, and probably on its distribution within the brain. A more obvious and striking form of self-maintaining process arises out of the connection between motor expression and sensory impression. Our whole mental existence, from its earliest and simplest beginnings to its most complex maturity, depends upon a perpetual cycle of changes, involving (1) mental change; (2) innervation of muscles; (3) muscular contraction and bodily movement; (4) consequent mental change. This process, in so far as it has its starting point and terminal point in the current of consciousness, is mental activity. Under the general schema are comprehended very various modes and degrees of self-determination. In its most complex developments it takes the form of self-conscious and deliberate volition, in which the starting point is the idea of an end to be attained, and the desire to attain it; and the goal is the realisation of this

end by the production of a long series of changes in the external world. In its earliest and simplest form it consists in those simple reactions which, without being determined by any definite idea of an end to be realised, tend on the whole to the maintenance of immediate pleasure and the avoidance of immediate pain. In these elementary phases the movements of the organism seem primarily adapted to the conservation and furtherance of vital process in general, and only secondarily and by way of necessary corollary to the conservation and furtherance of conscious life. But when we come to the higher modes of voluntary action this relation is inverted. Ideal ends are often realised at the sacrifice of bodily health, and sometimes even of life itself. There is, however, one class of non-voluntary movements arising early in the course of mental development, which are specially and immediately appropriated to the maintenance of conscious process, as such. I refer to the motor adjustments of the organs of sense for the reception of impressions. Such adjustments are determined by the interest of this or that impression. This interest may arise from its immediate relation to primary organic needs with their corresponding organic sensations and vague or definite appetites, *e.g.*, hunger or thirst; or from its relation to those aims and tendencies which arise with the formation of complex systems of ideas, *e.g.*, scientific curiosity, ambition, jealousy. From whatever source it arises, the degree of interest attaching to an impression is the measure of its importance as a factor in the process of conscious experience, either negatively as an obstacle, or positively as a furtherance. A pleasant impression is, as we have mentioned, and as we shall endeavour to make good in the sequel, in its immediate effect, a means of furtherance. A painful impression is, in its immediate effect, a hindrance. Now the primitive tendency of the motor adjustments of the sense organs is simply to maintain and

intensify agreeable impressions, and to escape or weaken those which are disagreeable. With the complications which arise in later stages of development this simple avoidance of the painful and retention of the pleasurable ceases to be in accordance with the conditions of mental life. When ends are desired which can only be realised by a series of successive acts, each being a necessary pre-condition of those that follow, it frequently happens that these intermediate steps involve experiences which are painful. Hence arises that peculiar form of attention which is called *aversion*. Thus we may with the greatest intentness watch the movements or listen to the words of a person whom we hate. It is enough here merely to indicate these complications: what is important for our present purpose is that the muscular movements involved in looking, in listening, in active touch, and so forth, are means whereby the individual consciousness maintains and develops itself in the endeavour after its own ends. They are instrumental in fixing attention on perceived objects. In an inchoate and modified form such motor processes seem also to play an important part in fixing attention on mental images. Whether they constitute the sole or the essential factors in either perceptual or ideational attention is a question which will occupy us in the next chapter.

The psycho-physical process constituted by the flow of consciousness, in combination with its correlated brain-changes, stands in a relation of action and re-action, not only to the rest of the organism, including the muscular and vaso-motor mechanism, but also to what we may call its brain-environment. This is best seen in the "revival" of ideas by association. The revival depends on the direction of attention at the time at which it takes place. But it also depends on a condition, which, so long and so far as the revival has not taken place, remains outside the psycho-physical process. This condition consists, in some sort, of modification of brain

substance, persisting as a residual product of previous psycho-physical process. The present psycho-physical process occasions the revival only by the re-excitation of this physiological trace. Thus the train of ideas may be said to propagate itself as a flame spreads among combustible material. In the process of reproduction, the self-propagating psychical process is as much restricted by preformed dispositions and associations as the self-propagating flame is restricted by the nature and arrangement of its fuel. There is, however, one very important difference: the psycho-physical process has itself in the first instance to a very large extent moulded the dispositions and associations which afterwards condition its progress: unlike the material flame, the flame of consciousness has prepared and arranged its own fuel. It is thus self-determining in a double way: (1) in so far as it initiates the changes on which its propagation immediately depends, (2) in as much as the brain substance, in which these changes take place, has been rendered capable of them only through previous psycho-physical process in which it has taken part.

We have seen that mental activity involves direct and indirect self-determination. How are these two modes of self-determination related to each other? It seems clear that, if our whole conscious existence is so constantly and thoroughly dependent on factors extraneous to it, there is no room anywhere within it for purely immanent causality. It is impossible to find any bit of mental process which is determined purely from within. Every assignable instance of psychical activity seems to involve the co-operation of factors which are not modes or contents of consciousness, and which are not the immediate physiological correlates of consciousness. It would seem, then, that all mental self-determination is indirect, in the sense explained. This conclusion appears to be indubitably correct. It rests with the advocates of pure activity, if there are such, to adduce a case of it, and, until such

a case is brought forward, we must assume that there is none. But the impossibility of isolating immanent or direct self-determination constitutes no reason for regarding it as a fiction. Otherwise, we should, by parity of reasoning, be bound to reject the second law of motion. No portion of matter can be even for a moment outside the sphere of influence of other portions. There is no such thing as "motion without acceleration".

We may, indeed, regard the whole physical universe as an internally complete system; and from this point of view we may regard each successive moment of the world-process as issuing out of the preceding by purely immanent causality. But such a view can be no more than an illustrative hypothesis. For the assumption that the physical world, with its indefinite extension in space, is or can be a completed totality, is perhaps fundamentally inadmissible. In any case, the stream of individual consciousness is no such self-contained unit. It is the merest fragment of universal reality, as its correlated brain-process is the merest fragment of the material world. All change within it is determined by factors extraneous to it. At the same time, it is equally true that no change within is entirely determined from without. The psycho-physical organisation is something, and therefore counts for something in all processes in which it takes part. In the language of Spinoza, it has a self-preserving *nisus* which is identical with its very existence.

The general analogy between organic and mental activity extends to two characteristic features, which are of special significance to the psychologist. These are (1) selectiveness, (2) adaptiveness.

The nutritive process is essentially selective, inasmuch as it involves the appropriation of what is fit for food, and the rejection of what is not fit. Similarly, the direction of mental life towards its ends involves the detention and intensification of favourable impressions in preference to those which are less

favourable or unfavourable. This means that we are active in producing or maintaining, avoiding or dismissing, our experiences only in so far as they have an agreeable or disagreeable interest. The adaptiveness of organic life is shown in various modes, in which the same end is attained under varying circumstances. When one organ becomes unfitted for its special function, the others tend to take its place. Disease of the kidneys throws more work upon the skin. When parts of the brain are removed, the resulting disturbances of motion and sensibility may gradually disappear, because the functions previously discharged by them are transferred to other parts. In normal conditions the same adaptability is evident. To maintain equilibrium, a new muscular adjustment is required for each varying posture of the body. On the side of mind this adaptiveness is shown in the series of trials and failures which alone make mental development possible. For illustration we need only refer to the child learning to walk or to imitate sounds.

We have repeatedly spoken of the furtherance and hindrance of psychical activity. To make our analysis sufficiently definite we must now examine the nature of the obstacles which may impede the current of consciousness. These are of two kinds. (1) The first falls entirely within the sphere of mental process; it consists in a conflict between two incompatible modes of mental activity: an internal discrepancy in the course of a train of thought on a theoretical point: the discovery of an obstacle to the execution of a plan for some practical end: "the conflict of motives," when we are divided between impulses to mutually exclusive modes of conduct: or, to take a simpler case, the mere shock of disappointed expectation when a perceived fact collides with our preconception or with our customary experience:—all these are cases of hindrance to the general flow of mental activity arising out of a conflict between its

special modes. Inasmuch as this conflict arises out of an opposition in the direction of the antagonistic modes of activity, it may be illustrated by the analogy of a body in space under the influence of opposing forces. The correspondence of course extends no further than the opposition of direction and the consequent arrest or retardation of movement. The mechanical analogy fails altogether when we take into account the adaptive nature of mental activity, which, when it is baffled, tends to realise the same end in another way. Another important difference is that in the case of mental conflict the opposing tendencies may become intensified by their very opposition. The distinctive mark in this first kind of obstruction is that it consists in want of harmony between one mental tendency and another. (2) The second kind of obstruction consists in a want of harmony between psycho-physical process and environing conditions. More precisely, it consists in a failure of the external means on which a mental activity depends for the fulfilment of its ends. Fatigue is a typical example of this kind of impediment. This is a hindrance to which organic function in general is liable. Brain and muscle alike become tired when they are exercised too long or too intensely. The wear of tissue outruns repair, so that the continuance of activity involves the dissolution of a more stable combination. Besides this, the chemical products of previous activity, failing to be carried off by the blood with sufficient rapidity, may accumulate and become hindrances. Such conditions as these come into play in the case of the brain as in that of other organs. Another group of instances of obstruction to mental activity arising from the failure of its external conditions is to be found in the interruption of the customary cycle of processes represented by the series:—sensory impression, motor expression, and sensory reimpression. This is illustrated by the mental oppression produced by

darkness. It is also a prominent cause of *ennui*. A person whose mental activity is habitually sustained by a certain kind of external excitement, becomes bored and restless when such excitement is denied him. The effects of solitude or of uncongenial society may be brought under the same head. In all such cases the progress of our psychical life becomes a restless struggle, which may be compared to the physiological difficulty arising from a deficient supply of oxygen. There is a mental as well as a physical suffocation.

We have now, I think, pushed the comparison of mental activity with its physical analogues at least as far as we can with any profit, and perhaps at points the analogy has been overstrained. We have now to consider the points at which the analogy fails. These all arise out of the fundamental and irreducible distinction between process which is conscious and that which is unconscious. The world of material phenomena, as regarded by the man of science freed from the animistic bias of common-sense, presents everywhere change, succession, transition, but nowhere *experienced* change, transition, or succession. The moving stone does not in any manner feel its own motion. The motion exists as an unconscious fact, and the idea of the motion exists in the minds of the external observers, and this is all. But it is otherwise with the flow of conscious states. Transition in consciousness is, *eo ipso*, *experienced* transition. This does not mean that the conscious subject has always an idea or any kind of cognitive apprehension of the changes which he is experiencing. On the contrary, we have seen that the immediate experience of any moment is never at that moment an object of thought. The feeling of change to which we refer could and would exist in a purely anoetic consciousness. If transitions in consciousness were merely cognised and not directly experienced, they would differ in

no essential respect from physical transitions. In both cases there would be, on the one hand, relations of antecedence and subsequence, on the other, ideas of these relations. It is true that the physical sequence would fall outside the mind cognising it, whereas the mental sequence might fall within it. But this would be a merely accidental difference. The whole supposition, however, is absurd. Without an immediate experience of change, cognition of change would be impossible, for lack of presentative material. The idea could not be formed because its specifying content would be wanting. The thought of succession in time must be based on the direct experience of time-transience, as the thought of red colour is based on the corresponding sensation. As the idea of colour-sensation is impossible to the blind, so the idea of change would be impossible to a being without the change-sentience.

But if a process, as such, is immediately experienced, we may reasonably expect that its various modes or aspects will each be experienced in a distinctive manner. In point of fact this is so. In particular, the cardinal antithesis between mental activity and passivity is not merely a group of relations ideally cognised by the reflective intelligence. Mental activity exists in being felt. It is an immediate experience. The stream of consciousness feels its own current. This becomes evident when we compare cases in which the degrees of activity vary. Take for example the following series: (1) In a state of delicious languor I enjoy the organic sensations produced by a warm bath. (2) In an indolent mood, I let my eye wander from object to object, and amuse myself with what I see, without any definite plan or purpose. (3) Without plan or purpose, I give the rein to my own ideas, following the train of more or less casual associations. (4) I repeat the multiplication table, or work out some simple arithmetical question of a familiar kind. (5) I work out an arithmetical

question which is more of a task because it is more complex, though it is of a familiar type, and presents nothing in the nature of a puzzle. (6) I attempt an arithmetical question which for a time baffles me, because it contains a difficulty which requires to be overcome by repeated trials. (7) In a critical point of my career I endeavour to decide between two courses of action,—the whole course of my future life being dependent on the decision. Of these (7) is a mental state characterised by a far more intense feeling of activity than (1), and (2), (3), (4), (5), (6) constitute an ascending scale of transitions mediating between them. No one would deny that this is so. But it may be alleged that what I call a feeling of activity is in reality something different. It may be said that it consists in certain muscular sensations. This view is represented by many recent writers of reputation. But its most noteworthy exponent is Professor James. I shall here quote and examine his statement of the case. He begins by giving a general description of our active consciousness which seems to me to a great extent correct. "I am aware of a constant play of furtherances and hindrances in my thinking, of checks and releases, tendencies which run with desire, and tendencies which run the other way. Among the matters I think of, some range themselves on the side of the thought's interests, whilst others play an unfriendly part thereto. The mutual inconsistencies and agreements, reinforcements and obstructions, which obtain among these objective matters reverberate backwards and produce what seem to be incessant reactions of my spontaneity upon them, welcoming or opposing, appropriating or disowning, striving with or against, saying yes or no."¹ So far so good. The only objection I care to make is that the furtherances and hindrances referred

¹ *Principles of Psychology*, vol. i., p. 299.

to presuppose pre-existing activity and do not merely awaken it by way of reaction. Professor James proceeds: "But when I forsake such general descriptions and grapple with particulars, . . . *it is difficult for me to detect in the activity any purely spiritual element at all. Whenever my introspective glance succeeds in turning round quickly enough to catch one of these manifestations of spontaneity in the act, all it can ever feel distinctly is some bodily process, for the most part taking place within the head.*"¹ Could anything be more perverse? Professor James is looking for his spectacles when he has them on. He is seeking for his own "palpitating inward life," the activity in which his very being consists, and he expects to find it in certain particulars, certain special contents of presentation, distinguished from other contents as blue is distinguished from green. It is like the identifying of the life of an organism with certain functions of certain parts of an organism. The result must be fallacious, whether the special elements singled out as constituents of activity are bodily or "spiritual". The elements actually selected by Professor James vary in different cases, though they are all sensations resulting from movements in the head or throat. "In attending to either an idea or a sensation belonging to a particular sense-sphere, the movement is the adjustment of the sense-organ, felt as it occurs."² "When I try to remember or reflect, the movements in question, instead of being directed towards the periphery, seem to come from the periphery inwards and feel like a sort of *withdrawal* from the outer world. As far as I can detect, these feelings are due to an actual rolling outwards and upwards of the eyeballs."³ "In consenting and negating, and in making a mental effort, the movements seem more complex, and I find them

¹ *Principles of Psychology*, vol. i., pp. 299-300.

² *Ibid.*, p. 300.

³ *Ibid.*, p. 300.

harder to describe. The opening and closing of the glottis play a great part in these operations, and, less distinctly, the movements of the soft palate, etc., shutting off the posterior nares from the mouth. My glottis is like a sensitive valve, intercepting my breath instantaneously at every mental hesitation or felt aversion to the objects of my thought, and as quickly opening, to let the air pass through my throat and nose, the moment the repugnance is overcome."¹ "In *effort* of any sort, contractions of the jaw-muscles and of those of respiration are added to those of the brow and glottis."²

Clearly Professor James here identifies the activity of the self with certain particular items of our conscious experience to the exclusion of other items. To me this whole mode of formulating the question seems inadmissible. It is like inquiring in what part of a body its extension is located. To put the objection in a somewhat different form, Professor James's account of the matter separates activity from the process which is active, and makes it consist in another collateral process. The activity is, in point of fact, as inseparably united with the process itself as its speed is. To identify this activity with some other process is like identifying the velocity of a moving body with the motion of some other body. But this is precisely what Professor James does. The activity of the reasoning process is, according to him, not an inseparable aspect of its existence, but a kind of external appendage consisting in opening and closure of the glottis, and so forth. The activity is experienced, not because the process is experienced, but because opening and closure of the glottis is attended by certain muscular sensations. Apart from such general considerations, Professor James's view seems to admit of indirect refutation. It leads to consequences which are hard to recon-

¹ *Principles of Psychology*, vol. i., p. 301.

² *Ibid.*, p. 301.

cile with facts. Thus, if the feeling of activity is identical with a collection of muscular sensations, the various degrees of felt activity ought to coincide with the varying intensity or multiplicity of these sensations. But is this really so? An easy train of reasoning on familiar lines, or even a reverie in which our minds roam idly from one inward picture to another, involves higher grades of activity than the mental attitude in which we give ourselves up to the play of external impressions,—for instance, when we indolently watch the movements of a kitten. But in watching the kitten we are adapting our visual organs to actual sense-impressions, whereas in the flow of ideas involved in the train of reasoning or the reverie there is at the most only an inchoate and partial revival of such adaptations. In my own case, the most prominent muscular accompaniment of the thinking process is the nascent articulation of words. But I do not find that the energy of this articulation is any kind of measure of the degree of activity involved in thinking. Otherwise, I should obtain the most intense feeling of intellectual exertion by passing from inner speech to actual utterance. In the next place, if mental activity is really a collection of cephalic movements, its direction ought to coincide with the direction of these movements. But this is not merely untrue; it is utterly nonsensical. It is entirely meaningless to say that closure of the glottis or movements of the eyeballs are by their intrinsic nature directed towards the solution of a theoretical problem or the formation of a practical decision. Of course they may be partial constituents of a process which in its totality is felt as tending towards such ends. But the very thesis against which I am contending is that a total activity can be identified with certain of its component parts. Again, how can the complexity of mental action find its parallel in the complexity of the motor processes in which it is alleged to consist? As regards assent and dissent, for example, our mental attitude is frequently very complicated.

We often make an affirmation and denial in the same act. Moreover, acts of assent or dissent may not be simple. They may involve all kinds of reserves and limitations, which for their verbal expression would require many pages of print. How can these intricacies be expressed at any moment by the mere opening and closure of the glottis?

But we need not depend on arguments of this kind. The cephalic movement theory may be put to the test of direct experiment. It is possible voluntarily to induce those bodily attitudes which accompany marked degrees of intellectual exertion. I am able to do so to such an extent that the resulting motor experience is distinctly recognisable as identical with that which commonly accompanies the mental effort involved in a train of thought. But it is equally clear to me that only the motor accompaniments are present and not the thinking activity itself. I can open and close the glottis without affirming or denying. While maintaining a bodily attitude characteristic of assent, I can emphatically *deny* that this attitude is identical with the act of assenting.

Finally, as an *argumentum ad hominem*, we may bring against Professor James the charge of inconsistency. In his chapter on Attention he declares against the theory that attention to represented objects is "a consequence of muscular adjustment, so that the latter may be called the essence of the attentive process throughout".¹ He cites experiments made by his students, who found that they could mentally envisage imagined letters of the alphabet and syllables "as total coloured pictures without following their outlines with the eye".² I do not see how Professor James can reconcile this view with his own account of the nature of mental activity, except by affirming that the non-muscular part of the attentive process is unconscious. But he is scarcely likely to resort to such a subterfuge.

¹ *Op. cit.*, vol. i., p. 444.

² *Ibid.*, p. 445, note.

If the above arguments are not irrelevant, they seem sufficient to justify us in rejecting the cephalic movement theory. If they are not relevant, and are based on mere misunderstanding, it would seem that Professor James's theory of active consciousness cannot clash with ours, as he must employ the term activity with a radically different meaning.

Returning from this polemical digression, we may re-state broadly the general result of our analysis, as follows: (1) The process of consciousness is, as such, a *felt* process. (2) Its various modalities are also felt, *e.g.*, the speed or slowness of its transitions or its complexity. (3) Among these modalities is included the antithesis between activity and passivity in its various gradations—the antithesis between the process in so far as it contributes to its own self-sustainment and development, and in so far as it is determined by conditions extraneous to itself.

But not only are the varying grades of activity immediately felt: there is also an immediate experience of its effectiveness or ineffectiveness, its freedom or constraint. Where our endeavour meets with an obstacle or drawback¹ sufficient to arrest its course and produce a dead strain, the result is a sense of painful struggle. On the other hand, successful activity, as such, is felt as agreeable or satisfactory, and the more intense the activity, the greater is the enjoyment. The onward flow which follows release from previous tension is usually a conspicuously agreeable experience. Of course, partial success and partial failure are frequently combined both successively and simultaneously, so as to occasion a mixture of feelings. In general, the thwarting of activity is felt as pain and its furtherance as pleasure. The converse statement is in our view also true, though more open to dispute. The evidence seems to show that all disagreeable consciousness involves

¹ Cf. above, p. 157.

some kind of effectual check or obstruction to the general or special flow of appetitive process. Bain has shown in great detail that bodily pain not only hinders but partially oppresses and destroys mental activity. The case is not so clear as regards agreeable feeling, because some pleasures appear to arise in connection with inaction. But this objection seems to us fallacious; the inaction is only relative; there is always some degree of attention,—if only to organic sensation: and what activity there is, is easy and effortless. The pleasure of laziness arises from the avoidance of obstacles; the pleasure of activity arises in large measure from surmounting them. But in both cases the mental action involved is successful. Constrained activity is the positive complement of thwarted activity. The thwarting consists in the arrest of the activity in its progress towards its own ends; the constraint consists in its being forced in an alien and contrary direction. This compulsion as immediately experienced is the distinctive mark of that mode of being attentive which we call *aversion*.

The contrast between conscious activity and all forms of physical process becomes more pronounced when we pass from anoetic experience to consider the objective reference in which thought consists. In the first place, it is only through its union with thought that activity becomes attention. For attention is a mode in which consciousness refers to an object; as a mental process it consists in maintaining and developing in consciousness the idea of an object. In the second place, all the forms of what is called, in the strict sense, voluntary action, involve thought: it belongs to the essence of will not merely to be directed towards an end, but to ideally anticipate this end and consciously aim at it. In the third place, thought makes possible another form of action which may be regarded as a collateral offshoot of will—ideo-motor action. This depends on the general principle that the idea of a movement

tends to produce the movement, even though the general direction of appetitive activity is opposed to it. The idea of the movement may thus under certain conditions—sometimes pathological—acquire such an intensity and persistence as to produce actions to which the agent has the keenest aversion. In this case an isolated impulse becomes an overmatch for the main stream of mental tendency.

§ 2. OBJECTIONS: BRADLEY'S THEORY OF ACTIVITY.

According to the view which we have expounded, to be mentally active is identical with being mentally alive or awake. According to this view, therefore, there can be no such thing as purely passive consciousness. This means: (1) that a total psychosis or state of mind can never be a state of complete inaction; (2) that no special content of consciousness entering into the composition of a total psychosis can exist apart from its relation to mental activity. Now, both these propositions are likely to be challenged as contrary to fact. As regards (1) it will be said that such conditions as idle reverie or recovery from a fainting fit or the languorous enjoyment of a hot bath, contain no trace of felt activity. Professor Baldwin thus states the case for reverie: "*Consciousness is not a power or energy of mind.* It does not involve the conscious effort of attention. In a state of reminiscence, of reverie, the states of mind are uncontrolled, and come and go with no let or hindrance from the mind. We are then fully conscious of this play of states, but of no exercise of mental effort accompanying it."¹ Here there seems to be a confusion, (*a*) between activity in general and the special form of it which involves strain or struggle; (*b*) between control in general and the special form of it which is distinguished as voluntary or

¹ *Elements of Psychology*, p. 57.

methodical control. Reverie is mental play ; its characteristic tendency is towards the most vivid consciousness which can be attained with the minimum of felt tension. But facile action is not inaction. If reverie is to be regarded as a state of pure passivity because it is effortless, some voluntary and methodical trains of thought must be similarly treated. Mozart could compose without effort. Scott could write without effort. Even a complex ratiocination may proceed without let or hindrance if the reasoner is a perfect master of his subject. In such cases there may be a highly agreeable experience of activity without appreciable strain. As regards the alleged absence of control in the state of reverie, a little consideration will show that it is comparative only, not absolute. It is true that in such dreamy conditions there is no methodical regulation of the flow of ideas for the attainment of a desired end ; but it is utterly untrue that the mental images glide over the surface of the mind as a procession of moving bodies is reflected in a mirror. Every step in the process is conditioned by interest as well as by association. We dwell on what attracts us and neglect what fails to attract us. The object of each idea is in some degree noted or attended to, and the attention bestowed determines the power of each idea to call up others. Subjective selection is a constant factor in deciding between the many divergent lines of suggestion which may have their starting point in the same idea. In melancholy moods we indulge in melancholy thoughts. When we are gay our thoughts are gay. If our prevailing bias is towards the comic aspect of things, then all kinds of odd and ridiculous combinations will present themselves. Perhaps the best way of bringing into clear light the element of activity involved in these indolent attitudes of mind is to consider the shock of dissatisfaction or resentment we often feel in being aroused from them by the demands of serious business. This resentment or dissatisfaction is felt as the consequence of the

thwarting or interruption of a felt tendency, which thus becomes a felt tension, revealing to retrospective analysis the previous existence of this felt tendency.

The languid state of consciousness which is experienced when we are in full enjoyment of the sensations arising from a very hot bath, in like manner reveals an element of conation when it is suddenly interrupted. Even the idea of such an interruption is sufficient to provoke a felt recoil. We are active in so far as we hug our present enjoyment,—in so far as we tend to maintain our existing condition,—*e.g.*, by withdrawing attention from competing sensations and ideas, and by movements adapted to enhance the feeling of voluminous warmth. It is clear, however, that a condition of this kind belongs to a distinctly lower grade of mental activity than even the laxest and idlest reverie. Reverie involves a train of ideas, and this involves a series of acts in the way of attending, together with a constant process of subjective selection. But these modes of being active are absent in the hot-bath experience. Now if reverie is not even the lowest grade of mental activity, it is obvious *a fortiori* that it cannot be a state of complete inactivity. Similarly, it seems possible to bring into relief the conative aspect of such experiences as that of the hot bath by comparing it with yet more passive phases of conscious existence. The nearest approach to a purely passive consciousness is, according to Baldwin, to be found in the beginning of recovery from a fainting fit. In certain faint and vague forms of dream also, subjective agency seems to be at a minimum. Certainly these experiences are more purely passive than any which occur in normal waking life,—even in a hot bath. To be awake¹ is to be active, and the more awake we are the more active we are. It thus appears

¹ I include the partial wakefulness of dreams.

that the antithesis of active and passive states of mind is not absolute; instead of a well-marked transition from the presence of activity to its complete absence, we find a series of insensible gradations, and the most perfect instances of passivity are found where consciousness itself is almost at its vanishing point.

Against proposition (2) it may be urged that the modes of anoetic sentience which exist side by side with the main stream of attention as collateral and irrelevant accompaniments are merely passive affections without essential connection with mental activity. This is the point on which Professor Baldwin lays most stress in asserting the existence of passive consciousness. In spite of his unguarded language concerning the state of reverie, he confesses that "in most cases passive consciousness is, by its very nature, undetected; and it exists as a normal state apart from active consciousness only in lower forms of organic life or in very young children".¹ We are not here concerned with the reference to "lower forms of organic life," or to "very young children". The assumption that these primitive stages of consciousness are purely passive is quite unsupported by evidence. They may be anoetic, but that is a different matter. Lower organisms and very young children move, and in their movements show the characteristic antithesis between those which arise in connection with pleasure and those which arise in connection with pain. In the absence of reasons to the contrary, this must be regarded as presumptive evidence that their consciousness is not purely passive. On the other hand, it must be admitted that the asserted existence of purely passive modes of sentience on the outskirts of the field of consciousness, disconnected from the main stream of thought, is at the first blush very plausible. Certainly I am not at this moment active in receiving the

¹ *Elements of Psychology*, p. 65.

multitude of sensations which come to me from surrounding objects, in the same way and degree in which I am active in attending to psychological topics. But the difference is only one of manner and degree. If I were not awake and in some degree attentive, these collateral experiences would have no existence. Conversely, they have a well-marked influence on the current of thought in the way of furtherance or hindrance. They are not like the shadows thrown on a stream by the clouds which flit over it. Dr. Féré has shown that sensation is "dynamogenic" or the contrary in relation to muscular movement.¹ It is also dynamogenic or the contrary in relation to the process of thinking. It stimulates and invigorates or depresses and disables. Mental work is better and more easily done in some surroundings than in others. Nor does this merely depend on the absence of collateral excitations. Dead silence and monotony of colour in the environment are, in my own case, very unfavourable conditions. The sound of running water, a well-lighted room, a variety of objects in it, an open window with a pleasing prospect are very favourable conditions, even though I take no notice of them. The active aspect of these anoetic modifications of consciousness is also shown in their tendency to divert attention and attract it to the objects with which they are connected. This tendency is not merely proportioned to their relative intensity. It also depends on their relative interest. The sound of my own name amid the buzz of voices in a room full of people engaged in conversation may interrupt my previous train of thought by calling off my attention, even though it is not spoken in a specially loud voice. In those pathological cases in which sensations lose this tendency to attract attention, they seem to fall outside the range of personal consciousness altogether, as in hysterical anæsthesia.

¹ *Sensation et Mouvement*, par Ch. Féré.

We may then conclude that there is no purely passive content of consciousness,—no content which is not in some manner, or degree a modification of our total mental activity.

Mr. Bradley raises a different kind of difficulty. He urges that the word *activity* can have no definite and intelligible meaning unless we limit it to those cases in which the production of a change is traceable to an antecedent idea of the change as its cause. In other words, *activity* is with Mr. Bradley synonymous with *voluntary activity*. "In desire and volition we have an idea held against the existing not-self, the idea being that of a change in that not-self. This idea not only is felt to be a part of that self which is opposed to the not-self,—it is felt also to be the main feature and the prominent element there. Thus we say of a man that his whole self was centred in a certain particular end. This means, to speak psychologically, that the idea is one whole with the inner group which is repressed by the not-self, and that the tension is felt emphatically in the region of the idea. The idea becomes thus the prominent feature in the content of self. And hence its expansion against, or contraction by, the actual group of the not-self is felt as the enlargement or the restraint of myself."¹ The perception of activity, according to Mr. Bradley, comes from the expansion of the self against the not-self as here described. Now I grant that Mr. Bradley has here given a very fair account of that special form of activity which is called voluntary. But he has given no positive reason for his assumption that there can be no activity which is not voluntary,—which does not include the ideal anticipation of a change to be produced. He merely implies that, apart from such ideal anticipation, the term *activity* is unintelligible, throwing out a somewhat scornful challenge to his opponents to explain it. In this

¹ *Appearance and Reality*, pp. 95-96.

chapter I have done my best to meet this challenge, and therein lies the substance of my reply to Mr. Bradley. But it may be advisable to add a few words here. In the first place there appears to be a confusion in Mr. Bradley's mind between the fact of activity and the mere experience of being active on the one hand, and the idea or perception of activity on the other. He expressly says: "The *perception*¹ of activity comes from the expansion of the self against the not-self, this expansion arising from the self,"² and so forth. At the same time he tacitly assumes that in accounting for the genesis of this perception he is *eo ipso* accounting for the genesis of activity itself. This is the more noteworthy, because Mr. Bradley is in general clear and emphatic in insisting on the historical priority of mere experience to the ideal reference which constitutes thought. I presume that he would urge the complexity of the conception of activity as a sufficient reason for refusing to regard it as a simple and unanalysable experience "like one of our sensations or pleasures".³ But this contention appears to admit of a ready and conclusive answer. However simple an experience may be, it may none the less constitute the essential and distinctive element in the specifying content of an idea which is highly complex and refers to a highly complex object. The sensation of red is simple, but the conception of redness, even if we disregard its physical conditions and consider it merely as a sensory quality, is complex. But the most useful illustration is supplied by the time-perception. Mr. Bradley himself says: "To show it as produced psychologically from timeless elements is, I should say, not possible. Its perception generally may supervene at some stage of our development; and, at all events in its complete form, that perception is clearly a result. But, if we

¹ The italics are mine.

² *Appearance and Reality*, p. 96.

³ *Ibid.*, p. 63.

take the sense of time in its most simple and undeveloped shape, it would be difficult to show that it was not there from the first.”¹ What is here said of time ought, in my opinion, for similar reasons and in a similar sense, to be applied to activity also. As there is a “sense of time in its most simple and undeveloped form,” so there is “a sense of activity” in its most simple and undeveloped form, and as the perception of time “supervenes on the primitive time-experience” at some stage of our development, so likewise does the perception of activity supervene. Finally, as the perception of time is complex and, in its complete form, “clearly a result,” whereas the undeveloped sense of time is relatively simple, so the primary experience of activity is simple as compared with the perception of activity, which is a highly complicated product of mental development.

In the next place, Mr. Bradley may, it seems to me, be fairly charged with inconsistency. After telling us that “activity has no meaning unless in some sense we suppose an idea of the change,” he immediately adds: “This of course opens a problem. For, in some cases where the self apprehends itself as active, there seems to be no discoverable idea.” “When activity is merely felt, there will never be there an explicit idea.” Incredible as it may seem, Mr. Bradley attempts to solve this “problem” by the time-honoured distinction between implicit and explicit existence. “The problem is solved by the distinction between an idea which is explicit and an idea not explicit.”² Surely this is but the trick of the ostrich hiding its head in the sand in order that it may not be seen. Whatever else may be meant when anything is said to exist implicitly, an essential part of the meaning always is that in point of fact it does not exist. An implicit oak is an acorn

¹ *Appearance and Reality*, p. 206.

² *Ibid.*, p. 98.

and not an oak at all. Of course Mr. Bradley attempts to explain what he means by an implicit idea. But his explanation, however carefully it is examined, seems still to leave us in a hopeless dilemma. Either there is an explicit idea or there is no idea. He avers that an implicit idea is "ideal solely in the sense that its content is used beyond its existence". In other words, an implicit idea is ideal solely in the sense that it is not implicit but explicit. What is an explicit idea if it be not simply identical with a "content used beyond existence"? It is only fair, however, to quote Mr. Bradley's more detailed account of what takes place in this hybrid experience. "We have first a self which, as it exists, may be called *Ac*. This self becomes *Acd*, and is therefore expanded. But bare expandedness is, of course, by itself not activity, and could not so be felt. . . . But what, I think, suffices [to give activity] is this: *Ac*, which as a fact passes into *Acd*, and is felt so to pass by the perception of a relation of sequence, is also previously felt as *Acd*. That is, in the *A*, apart from and before its actual change to *d*, we have the qualification *Acd* wavering and struggling against *Ac*. *Ac* suggests *Acd*, which is felt as one with it, and not as given to it by anything else. But this suggestion *Acd*, as soon as it arises, is checked by the negative, mere *Ac*, which maintains its position. . . . But when the relation of sequence seems to solve this contradiction, then the ensuing result is not felt as mere addition to *Ac*. It is felt as the success of *Acd*, which before was kept back by the stronger *Ac*. And thus, without any *explicit* idea, an idea is actually applied; for there is a content which is used beyond and against existence. And this, I think, is the explanation of the earliest felt activity."¹ Now, I am quite ready to admit that this is a good analysis of a primitive stage of active consciousness. One phase of con-

¹ *Appearance and Reality*, pp. 98-99.

scious process tends by its own intrinsic nature to pass into another in spite of hindrance, and the transition is felt as an experience of activity. But I utterly fail to see how any ideal anticipation of the change is involved. *Acd* wavering and struggling becomes *d* triumphant. Are we therefore to regard *d* or *Acd* as "a content which is used beyond and against existence"? We may do so if we take these words to mean merely *Acd* repressed tends to become something else, *i.e.*, *Acd* triumphant. But this "use beyond existence" cannot, except by a gross equivocation, be identified with the use beyond existence which constitutes an idea as opposed to a mere experience. On the other hand, if *Acd* in its wavering and struggling state not merely tends to pass into *Acd* triumphant, but actually contains some forethought of its own realisation, it is nonsense to call it an implicit or an undiscoverable idea. It is also to be noted that the symbolism used by Mr. Bradley masks and disguises the true state of the case. *Acd* in the state of struggle is by no means the same *Acd* as *Acd* actualised; and it is incorrect to represent it by the same symbols. The sucking child is in a very different mental condition when he is craving milk and when he satisfies his craving. In the state of craving there may be an incipient revival of the content of previous experiences of satisfaction. But just because this content is a revival and incipient, it is very different from the actual experience. If we designate the actual experience by *Acd*, we ought at least to mark the difference by making *Acd*₁ stand for the revival.

§ 3. ANIMISTIC VIEW OF NATURE.

In comparing psychical activity with physical process, we adopted the scientific mode of regarding nature. For modern science natural law is merely a statement of general rules of sequence and co-existence—a conceptual formulation of the

"routine of sensible experience," as Professor Pearson calls it. But in ordinary thought and speech concerning the material world, there is blended with the bare notions of uniform succession and co-existence another element. Causation for the "plain man" involves more than mere priority and subsequence: it carries with it a vague, and, for science, a futile representation of what Professor Pearson calls "enforcement". The traces of this bias are often found even in scientific exposition. Thus it is plainly in evidence whenever "force" is referred to as cause of motion or a reason why a body moves. This is the case, for example, in Newton's second law of motion: "Change of motion is proportional to force applied, and takes place in the direction of the straight line in which the force acts". In common language such words as *pressure, strain, stress, energy, resistance, impact*, imply something more than can be included in a mere description of the space relations and the changes of the space relations of the parts of matter. This something more is certainly rather indistinctly conceived. There is, however, no room for doubting that it consists in an assumed inner state of material bodies,—a state imperceptible to the external observer and uninterpretable in terms of the data yielded by external observation. Hence it follows of necessity that the only source from which the material for these ideas of force, enforcement, etc., springs, is our own mental life. Hume, who was the first to point out the scientific fruitlessness of this notion of causal necessity, as well as the metaphysical difficulties involved in it, clearly saw that it must have its origin in our own subjective experience. He came to the conclusion that its subjective source lay in the felt propensity to pass from one to another of two closely associated ideas. This felt propensity or immediately experienced enforcement is, according to him, transferred from the transition between ideas to the transition between the physical facts to which the ideas refer. This view is correct

enough so far as it goes. It errs, however, in starting from a special phase of psychical activity, instead of from that activity as a whole with its various modalities.

Without going into details, which for present purposes would be superfluous, it is enough to remark that the animistic bias of ordinary thought which leads us to represent moving and resisting bodies as if, in some vague way, they had an inner experience of their own activity, is traceable backwards to that primitive stage in the history of culture in which earth, sky, stars, stones, plants, animals and men were all regarded as on the same plane of conscious life. Abundant evidence for the existence of this primitive mental attitude towards nature is to be found in Tylor's *Primitive Culture* and similar works. We are here mainly concerned to guard against the supposition that the application of the term *activity* to mental process is in any sense metaphorical. So far is the conception of psychical *force* from being derived from that of physical *force*, that the very opposite is true. The metaphorical use of the term is to be found in its application to material change, not in its application to mental.

CHAPTER II.

THE PROCESS OF ATTENTION.

§ 1. THE ESSENTIAL NATURE OF ATTENTION.

WE have already endeavoured to give a general definition of attention. The distinction between attention and inattention is according to this definition coincident with the distinction between noetic and anoetic experience. We attend in so far as our psychical activity directly produces, or maintains and develops, such contents of consciousness as have a more or less determinate objective reference. The object referred to may be of any kind whatever, *e.g.*, a material thing, the quality of a present sensation, a bygone emotion, a system of philosophy, or the nature of the soul. If and so far as any content of consciousness is a perception, idea, conception, apprehension or awareness of somewhat, the activity in and through which this content exists is attentive activity. This account of the matter is in obvious agreement with the common-sense view according to which attention is the self-direction of the mind to an object.

It must not, however, be supposed that there is an absolute line of division between attention and inattention. We have no sufficient ground for asserting that any experience of a normal human being is so completely anoetic that it has no objective reference whatever. The mass of special sensations and of systemic sensations and of irrelevant bits of imagery which constitute the field of inattention at any moment,

occupy this position because they do not refer to the more or less definitely discriminated object which specially occupies our thoughts. Nevertheless, they may mediate an indeterminate awareness, such as the vague apprehension of one's own embodied existence, or the sense of having an environment and of its general nature. This low level of noetic experience is characterised by the absence of distinction and relation. The indefinite objective reference has for its vehicle a single massive sentience. The various special modifications of sentience which this massive sentience contains do not mediate the apprehension of correspondingly special objects. Their felt differences are not thought-distinctions. On the other hand, what characterises attention proper as opposed to inattention is the singling out of special contents so as to discriminate special objects.

§ 2. GENERAL CHARACTER OF THE PROCESS WHICH CONDITIONS ATTENTION.

Having fixed the essential nature of attention as an attitude of consciousness towards objects, we have now to consider the specific nature of the mental process on which this attentive attitude depends. In other words, we have to examine the conditions which determine the distinction between attention and inattention.

In a vague way we have already supplied an answer to this question in speaking of the process of attention as constituting the main current of conscious life. The direction of mental process as a whole is the direction in which *thought* moves. Contents which fall within the field of inattention are like eddies in a stream. Such eddies in a sense form part of the total movement of the water; but they do not share in its onward flow. In a somewhat similar manner the modes of sentience which are without objective reference, though they

are modifications of the total mental activity, do not belong to its main current.

Our present problem is to analyse the nature and conditions of this predominance of the process of attention. Now, one distinctive and essential feature of attention, considered merely as a process, is its systematic complexity. The collateral modifications of consciousness which fall within the field of inattention are comparatively isolated and detached both from the co-ordinated grouping, which coincides with attention, and from each other.

To understand the systematic unity of the attention-process, we must bear in mind what has been said about implicit and schematic apprehension in chap. iv., and especially in §§ 4-5. The special object of attention at any moment always has a psychic fringe; it is presented as a constituent part or aspect of some kind of whole. This whole itself may be only implicitly apprehended; it perhaps never completely appears in explicit detail. It will be sufficient to point out here that the psychic fringe exists even in the simplest cases of attention. If this be so, it must, *a fortiori*, be present in the more complex. Now, the simplest cases of attention are to be found in sense-perception as distinguished from mere sensation. The minimum which is required for such a perception is the identification or recognition of a sensory quality, or at least some rudimentary attempt to identify or classify, such as would be expressed in language by the question, What is that? Now, all identification or recognition implies a reference beyond the object identified or recognised. It means that the object comes before the mind as an instance of something. After seeing an object A , we may, on the appearance of a second resembling it, exclaim, "There's another!" Call the second A_1 . When we see A_1 , there may be no separate recall of the idea of A . The reference to A contained in the words, "There's another!" in this case takes place in the way of implicit apprehension: it

is a psychic fringe. This implicit reference to other instances is the minimum requisite for the simplest recognition. In more complex forms of the process, there is actual recall and comparison of different instances. The presence of the psychic fringe is still more obvious in what is called the *perception of a thing*. The visual perception of an orange involves vastly more than the modification of sentience directly traceable to the play of light on the retina, and more even than the identification of the corresponding sensory quality. The orange which is perceived is a unity of manifold qualities, connected according to a specific plan of grouping. The visual appearance comes before us only as a constituent of this whole. Other constituents may be ideally apprehended, but it is not necessary that they should be: and they are probably never all presented at any one moment. The thing, as a unity in multiplicity, is present to consciousness as a psychic fringe.¹

The systematic unity of the attention-process depends upon the presence of the psychic fringe. Its systematic complexity depends upon the tendency of this or that explicit part of an implicitly apprehended whole to co-ordinate itself simultaneously or successively with other parts or aspects, according to the specific plan of combination characteristic of the whole. The given presentations acquire, or tend to acquire, a more or less definite context: they group themselves, or tend to group themselves, in a specific manner with other contents of consciousness. Simultaneous complexity is less essential than successive. A typical instance of it is the ideal revival of tactual and other perceptions, which often accompanies the visual presentation of a sensible object. The nature of successive complexity is best brought out by considering it in its most conspicuous form, as it appears in a train of sus-

¹ See bk. i., chap. iv., § 4.

tained thought. The successive steps in such a train are progressive determinations of the same central topic, and the persistent thought of this topic guides and controls the whole process. Between a protracted train of thought which lasts for an hour and a transient act of attention which lasts for only a few seconds, there is in this respect only a difference of degree, not of kind. Whenever we attend at all, we attend to some object, and it is the essence of the process that, in and through it, our apprehension of this object shall become, or at the least *tend* to become, more full and distinct. For this reason a certain prospective attitude of mind is characteristic of attention. *Attendere* originally means to expect or await. This prospective attitude is for the most part interrogative. The interrogation in its more primitive phases is dumb, and to express it in language is to falsify it by giving it a fictitious definiteness. But with this reservation we may say that it corresponds to the question—What is that? or simply, What?

In cases of simple æsthetic or sensuous enjoyment, it seems inappropriate to describe the attentive attitude as one of inquiry. It may still, however, be correctly described as prospective. Æsthetic contemplation endeavours to exhaust the complexity of its object; and in sensuous or quasi-sensuous enjoyment, if attention be present at all, there is at least a looking forward to more gratification, corresponding to the continued craving. We look forward to further gratification so long as appetite remains unsatiated. This point will be referred to in our concluding chapter, on Pleasure and Pain.

So far, we have considered attention only in what may be called its *dynamical* aspect. We have not taken into account the relation of the conscious process to preformed psychical dispositions. This introduces the conception of a *psychical system*. The unity of such a system is constituted by the relation of the psychical disposition corresponding to the

presentation of a whole, to the psychical dispositions which correspond to the presentation of its constituent parts. The unity of successive phases of the attention-process involves the successive excitation of the components of a psychical system in an order controlled by the guiding influence of the central disposition.¹

In attending, our apprehension of objects becomes, or at least tends to become, more full and distinct. This means that throughout we are aware of some kind of whole or unity in multiplicity, and that the process itself consists in discerning parts or aspects of this whole, in successively distinguishing the multiplicity which is unified in it. In other words, a relatively implicit (schematic) apprehension becomes relatively explicit. Now, what corresponds to the apprehension of the *whole* is the excitement of a pre-established group of dispositions in its systematic *unity*, and this can only take place when its central disposition is brought into action. On the other hand, the successive evolution of the details, or special aspects of the apprehended whole, answers to the successive excitation of the multiplicity of subordinate dispositions which are connected with each other by their common relation to the co-ordinating centre.

It must not, however, be supposed that psychical systems act with machine-like regularity, always repeating the same process in the same way—like a musical-box grinding out tunes. Every time they enter into action they become in some way and degree modified: they acquire new components or suffer readjustment, or become more readily excitable. This leads us to the third characteristic of the attention-process—its relative novelty. It is the growing-point of the mind; it is the process in and through which psychical systems form themselves. In extreme enfeeblement

¹ The nature of this control will be discussed in bk. ii., chap. v.

of attention, such as we find in typical cases of hysteria, in which continuity of thought is almost abolished, there is a marked inability to acquire new combinations of ideas and new modes of action. Attention considered from this point of view, as a process of mental growth, or, at least, of mental adjustment to conditions not perfectly familiar, is called *apperception*, and the preformed systems which take part in it are called *apperceptive systems*. We shall have to treat it separately under this aspect in a future chapter, and what we are now saying about relative novelty as a condition of attention will then receive further justification and explanation. At present we have only to point out that, *ceteris paribus*, an apperceptive system is the more easily and the more intensely excited in proportion as the exciting conditions tend to produce change in it. Familiarity breeds contempt. We do not as a rule notice the familiar furniture in our room in its familiar arrangement, or the pen we are accustomed to write with, or the common words we meet with in reading. The miller fails to notice the clack of his mill, and the weaver fails to notice the rattle of his loom. In such cases there is a preadaptation of the mind to certain impressions, which therefore cease to initiate mental change. If, on coming into my room, I find a familiar picture in an unfamiliar place, if a chair has been set on the table, or if some ill-advised person has been putting my books and papers in order, my attention, unless it be much preoccupied, is strongly aroused. If the clack of the mill stops suddenly, the miller becomes aware of it with a start. If, in reading, I meet with a newly-coined word or with an accustomed word in an unaccustomed application, my mind is apt to diverge from the subject-matter to consider the novelty of expression. It must not, however, be supposed that the relative novelty which characterises the attention-process must originate in the relative novelty of its exciting conditions. Preadaptation to familiar impressions

may also cease because the mind itself has passed through a process of change. New apperceptive systems may have grown up, or pre-established ones may have received further development. Thus the study of botany or geology will give a person an interest in objects which he had previously disregarded. The essential condition is that there shall be some kind of change or readjustment in the mental preformation. We may say in general that what arouses attention is neither familiarity as such nor unfamiliarity as such, but the intermixture of the two.

Sense-impressions are capable of arousing attention if and so far as they are capable of exciting some preformed system of psychical dispositions, or of taking part in some pre-existing process which already involves the activity of such a system. The intensity of the sensation is, within limits, a favourable condition. But where the sensation is so intense as practically to occupy the whole field of consciousness, attention to definite objects ceases, and anoetic sentience takes the place of thought. In having a tooth drawn our consciousness seems to consist in a single thrill of painful sensation. The intensity of the impression prevents the formation of any systematically restricted process involving the co-operation of a special group of connected elements. This is an extreme case of a common experience. Whenever sensation passes beyond a certain pitch of impressiveness, and especially when it becomes so intense as to be markedly painful, it disturbs attention and, so to speak, clogs the wheels of thought. This holds good of presentations which are otherwise capable of exciting and sustaining attention. But it is especially emphasised in instances where obtrusive sensations either do not possess, or fail to co-ordinate themselves with, preformed systems of mental connection. Thus persons blind from their birth, when their vision is restored by an operation, find themselves for a considerable time after their recovery confused

and dazed by the influx of a multiplicity of varied and varying visual impressions; for this reason it is a severe trial to them to walk in frequented streets and public places.¹ The same thing happens also in those rare instances of psychical blindness in which vision is not seriously impaired. Thus in a very interesting case reported by Dr. H. Wilbrand,² a lady who could see very well, but could not recognise familiar objects or find her way in familiar localities, felt herself confused by the visual impressions from surrounding objects. "The reality," said she, "makes me confused; I can live better in ideas than in the reality." This stupefying and distracting effect of optical impressions withheld her from visiting concerts, churches, theatres and social gatherings. She always went downstairs backwards, because the sight of a great number of steps made her dazed and dizzy.

In such instances as these sensuous intensity is hostile to attention. But normally it is, of course, a condition which favours attention to objects with which the-impressive sensations (or images) are connected. This is so, because, within limits, the stronger sensations are, the more effective are they in exciting co-ordinated groups of psychical dispositions. But there is another factor which is a coefficient in determining this result; much depends on the comparative excitability of these preformed mental systems themselves. It thus happens frequently that a stimulus succeeds in arousing attention, where competing impressions of equal or greater strength fail to do so. This is a psychological common-place, which it would be wearisome and futile to illustrate at length. An instance from my own experience may suffice. I am somewhat deaf, and when conversation is going on among a considerable number of persons I am usually unable to hear

¹ For a good general account of these cases, with references, see *Die Seelenblindheit*, by Dr. H. Wilbrand, pp. 6-42.

² *Ibid.*, pp. 51-66.

anything which is not directly addressed to myself with a distinct utterance by my immediate neighbour; all the rest of what is being said around me is a confused murmur. I sometimes find, however, that if any one even at some distance from me happens to refer to philosophy or any other subject in which I have a keen interest, his words disengage themselves from the chaos of sounds and fix my attention. The effect of a word in our own tongue occurring amid the flow of speech in an unfamiliar language is similar, though more striking. Other instructive examples are furnished by the oft-quoted case in which a person is readily roused from sleep by some word or phrase connected with his special interest or occupations, when more violent means fail. "I remember," says G. H. Lewes,¹ "once trying the experiment on a wearied waiter, who had fallen asleep in one of the unoccupied boxes of a tavern. . . . I called out 'Johnson' in a loud tone. It never moved him. I then called 'Wilson,' but he snored on. No sooner did I call 'waiter' than he raised his head with a sleepy 'Yes-sir'. The dissyllable 'Johnson' would excite as potent a reaction of his sensory organ as the dissyllable 'waiter'; but the (organic) thrills were different."

§ 3. TELEOLOGICAL ASPECT OF ATTENTION AND ITS IMPLICATIONS.

We must insist on the teleological aspect of the attention-process. Attention is activity; and it is the essence of activity that it should be directed towards an end. We have seen in our general analysis of conation that all striving or endeavour which is not anoetic, is a mode of being attentive. Some conative states, such as the desire for food, depend for their satisfaction on movement of the organism in relation to

¹ *Physical Basis of Mind*, p. 416. The whole chapter is worth reading in connection with the question touched on in the text.

its environment. Other strivings, such as the endeavour to recall a name, may in many instances be satisfied by the inward flow of ideas, without overt muscular action. But whatever may be the conditions required for satisfying an appetency, it remains universally true that, in so far as it is a mode of noetic consciousness, it is a mode of being attentive. This result of our previous analysis has an important implication. It follows from it that every specific process of attention tends to bring about its own cessation. It tends to "run down" like a watch. Its end in the teleological sense is also its end as an occurrence in time. This is true of all conation, whether anoetic (blind craving), or noetic (desire, as a mode of being attentive). A child may be hungry without having any idea of the means by which its hunger can be satisfied. This is blind craving. When it is supplied with nourishment by others, the craving ceases, and this episode in its mental history is concluded. A thought-illuminated conation, such as the definite desire for food, runs its course and reaches its natural ending just as the blind craving does. When a man's appetite is fully appeased, he ceases to think about his dinner. It is the same with merely intellectual desire. The child's curiosity concerning the inner construction of his toy ceases when he has broken it up. The comparative anatomist's curiosity concerning the bones of a hitherto unknown species of animal, terminates when he has re-constructed the plan of the skeleton they belong to, and classified it appropriately.

It may be objected that we have an exception to this rule of finality in certain cases of æsthetic or sensuous enjoyment. But the enjoyment is not final satisfaction, it is only the process of being satisfied. Final satisfaction comes with satiety. Until then, the appetite for more persists, and attention persists with it. It may also be urged that certain objects of attention are not capable of exhaustion in a finite process.

This is true : but our point is that, if and in so far as its end is completely attained, attention ceases. This holds good in principle, although there are some ends that never can be completely attained.¹

On the other hand, all such processes tend to continue—apart from disturbing conditions—until their end is attained. A student occupied with his work has his attention diverted by the commencement of a familiar tune ; in order to settle down to his work again with an undisturbed mind, he may find it necessary to go through the whole tune, at least mentally. When a piece of work demands a series of efforts with intervals between, the worker tends to discontinue his task on each occasion only when he comes to certain natural pauses. Thus in writing we are reluctant to leave off in the middle of a sentence : we want to finish the paragraph, or, if possible, the chapter.² On the other hand, there is a strong tendency to rest and turn to something else when any subdivision of the work has been completed, which is marked off from what succeeds in a specially definite manner, or which has cost a special effort.³ On the completion even of subordinate subdivisions, such as a paragraph in writing, there is a tendency to pause for a time, though it be only for a second or two. In

¹ This distinction between ends which can, and ends which can not, be attained, is highly important for the conduct of life. The voluptuary devotes himself to the pursuit of finite ends, and runs the risk of becoming *blasé*. The only life worth living is one that aims at ideals of some sort, practical or theoretical.

² Secondary considerations may, however, induce us deliberately to adopt a different procedure. We may prefer to pause in the middle of a sentence, because we feel that we can more easily resume our task at such a point. In principle, however, this does not prejudice the statement in the text.

³ It may be said that the pause arises because we find a difficulty in going on. But this is only a different way of saying the same thing. We find a difficulty in going on because the attention-process has “run down” and needs to be “wound up” again.

general, we may say that every specific process of attention tends to go on until its end is achieved, and that it then ceases of itself.

These and other characteristics of attention may be illustrated by comparison with certain physical processes. The change in a psychical system which initiates attention bears a close analogy to disturbance of equilibrium within a material system which tends to regain a state of virtual stability. Attention itself corresponds to the series of occurrences by which this state is restored. If we suppose the mode in which the balance of the system is disturbed and restored to differ appreciably on different occasions, so as to produce progressive modification of the inner constitution of the system, the analogy becomes closer still. When we turn to its physiological aspect, we shall see that attention actually is correlated with material occurrences of this kind. From the purely psychological side, the conception of disturbed and restored equilibrium can hardly be regarded as being more than a safe and appropriate metaphor.

§ 4. AUTOMATIC AND VOLITIONAL ACTION.

The antithesis between attention and inattention has for its counterpart in the sphere of bodily action the antithesis between volitional and automatic movement. In proportion as we "mind" what we are doing, we exercise volition; in proportion as our movements "go on of themselves" without our heeding them, they are non-volitional. Hence the characteristics which are distinctive of the attention-process are also distinctive of will as opposed to automatism. Volitional action is relatively novel; it is pre-eminently the mode in which the sentient organism adjusts itself to new emergencies as they arise. Automatic action, on the other hand, is the mode in which the organism responds to such external conditions as recur with comparative uniformity.

The distinction is not indeed absolute, any more than the distinction between attention and inattention is absolute. No psychical process exhibits the undeviating regularity of machinery in operation. The man who threads his way through a crowded street, preoccupied in thought, is certainly regulating his movements in correspondence with fluctuating conditions. It is true that in most instances of this kind the process is not continuously automatic: automatism gives place every now and then to intermittent acts of more or less definite attention. But, making full allowance for this, we cannot account for such a case as that of J. S. Mill composing whole sentences and paragraphs of his *Logic* while walking to and from the India Office, without supposing a certain amount of automatic adaptation to varying circumstances. None the less it remains true that the limits of the variation as regards kind and degree are very narrow when compared with those to which volitional adjustments correspond. It is essential that they shall be variations of a kind to which we are accustomed. If, for instance, in walking through the streets, the crowd becomes specially dense and disorderly, attention is immediately aroused.

This failure of automatic adaptation is especially marked where a new co-ordination of successive actions is called for. The automatic process follows the customary time-order. Thus if we are in the habit of going to a certain place by a certain route, attention is required to enable us to branch off in another direction when we have reached a given point. If we are absent-minded, we shall walk past the turning, and may not wake up to our mistake till we have reached our accustomed terminus. Such cases bring into a clear light the second characteristic of the attention-process—the systematic unity of its successive phases. The successive phases of automatic action are detached from each other, and mutually independent so far as the mind of the agent is concerned.

Each is initiated by the passing sensations of the moment. Each preceding stage determines the succeeding stage only in so far as it gives rise to new sensations by movement and altered position of the organism and its parts. On the contrary, in volition the temporal order of the successive movements is throughout controlled by the thought of the action as a whole and of the end to which it leads.

Finally, volitional action, even if we disregard the co-ordination of its successive phases and consider it at any given moment, is a much more complex process than automatic action. Automatic action approximates in its nature to a pure impressional reflex. The sensations which determine it fail to evoke the co-ordinated groups of dispositions which are necessary to perception of an object. There is also a tendency, the more thoroughly automatic the action, to reduce to a minimum the complexity of the sensations which prompt and guide it. An experienced knitter finds no difficulty in reading a book while she knits. In walking we do not usually fixate with our eyes the objects which guide us; indirect vision is sufficient. It is possible to read a book while dressing or undressing. On the other hand, in proportion as we "mind" what we are doing there is a tendency to bring into co-operation all the sensory processes which are capable of directing the muscular activity. Any one who has gone through the process of acquiring, or attempting to acquire, any kind of manual dexterity, can easily supply illustrations from his own experience.

§ 5. THE INHIBITIVE ASPECT OF THE ATTENTION-PROCESS.

We can only attend to one thing at a time. This commonplace of psychology is true or false according as it is interpreted. What is meant by "one thing"? It is clear that if the principle is to hold good the unity of the thing must be

defined from a purely psychological point of view. There are no two things in the universe so disparate in their nature that we cannot think of them together. If I hear the sentence, "The soul is red," I think at once of both the soul and redness. The essential condition is that, however manifold or heterogeneous the objects of my thought at any moment may be, I must in thinking of them think of some relation between them. In the case of redness and the soul, their very disparateness and disconnection is sufficient to constitute a connection between them for my consciousness. So in performing two actions at once, otherwise than automatically, we shall find that their simultaneous co-ordination demands attention. Once when Sir Edwin Landseer¹ was present at an evening party an idle observation was hazarded by an "empty-minded" lady of distinction as to the impossibility "of doing two things at once". Accepting the remark as a challenge, Landseer asked for two pencils and a piece of paper. He then, "with a pencil in each hand, drew simultaneously and without hesitation, with one hand the profile of a stag's head and all its antlers complete, and with the other the perfect profile of a horse's head". Now, a stag's head is one thing and a horse's head is another. But to draw them simultaneously is psychologically a single act if the simultaneous adjustment requires attention. If it does not the acts themselves do not; they go on of themselves in an automatic way. We may safely challenge the most skilful person to combine two acts without attending to their combination, if and so far as each of them separately requires attention. Of course cases in which attention is rapidly transferred from one object to another and back again are not relevant. Cæsar's simultaneous dictation of a number of different letters, and simultaneous chess-playing, come under this head.

The unity of the object of attention evidently corresponds

¹ Dr. W. A. F. Browne, quoted by Ireland, *Blot on the Brain*, p. 346.

to the unity of the process. This consists, as we have seen, in a systematic combination: whatever modifications of consciousness do not form an integral part of the system cannot possess any definite objective reference. The only question that remains is why there cannot be two or more systematic processes of this kind going on independently at the same time. We answer in the first place that this both can and does happen. One such process goes on in the mind of *A* and another in the mind of *B*. Nay, there appear to be pathological conditions in which something of the sort takes place in the same organism. All the evidence that has been adduced to prove the existence of what is sometimes called simultaneous duplex or multiplex personality points in this direction. The mental disorganisation accompanying hysteria and hypnosis gives rise to many such phenomena. A hysterical patient while occupied in conversation may be at the same time writing with one hand answers to whispered questions relating to experiences to which she seemed insensible while they were taking place, owing to hysterical anæsthesia. But in all cases of this kind the existence of mutually separate and exclusive attention-processes seems to coincide, so far as it goes, with the existence of distinct individual minds of a very low order of individuality; they certainly do not appear to me to deserve to be called personalities.

In normal conditions, when the consentience of mental and neural processes is undisturbed, there is in general only one direction of attention at a time, and this is coincident with the main current of mental activity. The ultimate reason of this lies in psychical competition which has its physiological counterpart in nervous inhibition. Each mode of mental process tends to arrest and suppress others; and each is successful in the struggle in proportion to its intensity and its systematic complexity. We shall presently see that there are a large number of organic arrangements which are adapted to intensify and

sustain the attention. At this point we have only to refer to the advantage in the struggle for existence which the attention-process derives from its systematic complexity. On the one hand there are a multitude of relatively detached excitations arising from sensory stimulations, internal and external, and from the revival of irrelevant imagery which is for the most part occasioned by the attention-process itself through a kind of collateral irradiation. On the other there is the compact resistance offered by a highly complex group of processes in systematic union and effective co-operation. The result is that attention in any given direction ceases only under one or more of the following conditions: (1) when its end is attained, *i.e.*, when the psychical system called into play has been so re-adjusted as to regain equilibrium; (2) when fatigue sets in; (3) when some competing sensation occurs impressive enough to interrupt it; (4) when some sensation or image occurs connected with a system of psychical dispositions which for any reason happens to possess at the time a relatively high degree of excitability. The full discussion of this last condition belongs to the special treatment of apperception. When conditions operate which tend simultaneously with nearly equal force to give attention disparate directions, the result is mental stupefaction. Each complex systematisation interferes with the other so that definite thought ceases or becomes at least imperfect and intermittent. If we ask why this state of mental distraction is the exception rather than the rule, the answer must be as follows: Competing tendencies are rarely so easily balanced—at least for any appreciable time—that none of them has even a momentary advantage over the other; but such a momentary advantage tends to increase itself: this it does partly because the further the systematisation proceeds the greater is the strength which is derived from its own complexity, and partly because the organic mechanism for fixing attention is brought into its service.

§ 6. PHYSIOLOGICAL CORRELATE OF THE ATTENTION-PROCESS.

In considering the physiological aspect of attention, we must refrain entirely from expressing any opinion on questions of physiology as such. What we may legitimately do is to fix broadly the kind of neural process which appears to correspond best with our psychological results. What we want is obviously a nervous arrangement which shall make possible a complex systematisation of nervous excitation corresponding to the complex systematisation of mental activity which is the essence of the attention-process. Now we have only to turn to the writings of some of our leading physiologists to find a suggestion of just such a nervous arrangement as we require, inferred on evidence for the most part independent of the psychological considerations which recommend it to us. The doctrine to which I refer is that of higher and lower level centres, especially as expounded by Dr. Hughlings Jackson, and after him by Dr. Mercier and others. Taking a purely physiological view, we may regard the nervous system as merely a mechanism for moving the body and distinguish centres merely as they correspond to or represent different movements. Now, the hierarchy of nervous centres consists in an arrangement by which the same movements are represented in increasing degrees of complexity as we pass from a lower to a higher level. This means that each relatively simple movement is represented anew in the centres for the more complex movements of which it forms a component part. Dr. Mercier illustrates by comparison with grades of rank in the army from private to commander-in-chief. This physiological doctrine supplies us with a means of picturing the material counterpart of that systematisation which we found to be an essential characteristic of the attention-process. Simultaneous

and successive co-ordination of subordinate parts from a centre or from co-operating centres seems to answer psychological requirements. Of course this is merely suggestion. The thorough-going application of the hypothesis would involve an extension of the theory of higher and lower levels, such as would probably startle most physiologists. Dr. Mercier appears to favour it most. The psychological doctrine stands on its own basis; and it is possible to conceive for it more than one physiological counterpart. It is by no means necessary to assume that a distinct psychical disposition must be correlated with a distinct neural centre. We have only to add that higher nervous centres are more modifiable than lower, so that highly complex nervous groupings are highly susceptible of change and readjustment, whereas the simpler arrangements function with automatic uniformity. This of course corresponds to the relative novelty of the attention-process.

As we have already indicated, the teleological aspect of attention has its physiological counterpart in the tendency of neural systems towards virtual equilibrium—towards a stationary condition, which is only liable to change from without, and not from within. This tendency exists not only in nervous tissue, but in every material system, as such. Any such system, in proportion as its environment remains uniform and constant, will itself in the long run attain a correspondingly uniform and constant constitution, so that alteration in it will depend on alteration in its environment rather than on its own nature. We may take as examples of systems which have thus attained to relative stability, the various species of plants and animals; and within the human organism itself, the processes of digestion, circulation, breathing, etc. When we turn to the nervous system itself, we find the tendency towards a stationary condition evidenced by the facts of habit. All automatic actions are the fixed and uniform response to the

fixed and uniform recurrence of similar modes of stimulation. Now, we have already seen that automatic action, as such, is action which does not involve attention. We reach the same result if we compare the mental life of groups of men with reference to the comparative constancy and uniformity of their relations to their environment. If we compare, for instance, animals with men, savage tribes with civilised people, farm labourers with the inhabitants of a great city, in proportion as change and variety in the environment is absent, mental life becomes a matter of dull routine, and the action of the brain approximates, in point of uniformity, to that of the nutritive organs. Ideas and modes of action become more or less stereotyped, and men vegetate. Conversely, the introduction of changed conditions into such a community gives rise to a relatively high degree of excitement and attention, because the process of adjustment to the altered environment which is required to restore relative stability is long and complicated.

If, following Avenarius, we call the process which intervenes between the initial disturbance of neural equilibrium and its restoration, a *vital series*, and the initial disturbance itself, a *vital difference*, we may state the general condition of attention as follows: In so far as the form of the vital series is fixed, recurring regularly in response to a regularly recurring vital difference, attention is absent. In so far as the form of the vital series varies, instead of following lines fixed by previous habit, attention is present. The state of a system which has re-attained equilibrium by removal of a vital difference, as the result of a vital series, is one of virtual stability. This means that, for the time, the inner tendencies of the system to change have been realised, and so cease to operate. We must distinguish from this virtual stability of the system itself, the relative stability or regularity of the forms of those changes by which virtual stability is regained. "When a vital

difference is repeated, it is not always removed in the same manner as on its first occurrence. On the contrary, the series very frequently becomes abridged and simplified; those constituents of it which do not merely subserve removal of the vital difference, but also contain superfluous collateral changes, are replaced by others or partially eliminated. These variations continue on reiteration of the vital difference, until a form of the vital series is obtained which contains nothing that is not indispensable for the resulting removal of the vital difference. Such a form is final and stable."¹ A nervous system which should respond to all vital differences in this way would have attained complete relative stability.

We have purposely refrained from any attempt to go into detail. Our whole object is simply to point out broadly what the meaning of complex systematisation may be in its physiological aspect. It will be seen that this account of the matter excludes the view that there are special centres for attention. The nervous correlate of the attention is not to be found in the excitation of this or that portion of nervous matter, but in a certain complex form of nervous process.

Such a theory as that which is connected with the name of Wundt² appears to me to involve fundamental psychological error. The presupposition which underlies it is that attention is a kind of agency which has for its passive object the special modes of presentational consciousness, intensifying, combining, and distinguishing them. This presupposition seems also to underlie Dr. Ward's doctrine of attention. Now, I do not hesitate to stigmatise this separation of activity from content as

¹ J. Petzoldt, "Einiges zur Grundlegung der Sittenlehre" (Dritter Artikel), *Vierteljahrsschrift für wissenschaftliche Philosophie*, Jahrgang xviii., Heft 2, 203-204. The exposition in the text of the nature of vital series has been substantially taken from the modified statement of Avenarius's doctrine contained in this article.

² I leave open the question whether Wundt has been rightly interpreted by those who attribute this view to him.

a most serious error. Perhaps the clearest way of bringing to light the fallacy which it involves is to point out that it implies a severance of mental activity from mental passivity. Activity and passivity are actually referred to locally distinct parts of the brain. What can this possibly mean? I find myself active just in so far as a prior state of my total consciousness determines a subsequent state, and passive just in so far as change in my consciousness is determined by extra-conscious conditions. Seeing that I am finite, I find that these two modes of determination are throughout inseparably blended. I never experience pure activity or pure passivity, but only the antithesis between them. I am more active at one time than at another; but the difference is merely a difference of degree. To assign a separate centre for mental activity is as if we should say that one locally distinct part of a falling stone falls by its preacquired momentum, and the other by the acceleration which it receives from the earth.

What lends plausibility to the Wundtian fallacy is a double confusion: (1) between the specific mode of presentational consciousness in and through which we think or attend to an object on the one hand and the object attended to on the other; (2) between modes of presentational consciousness which are dependent on precedent mental activity and the extra-conscious conditions on which this mental activity operates. As regards (1) it is clear that the object attended to is separate from and independent of the act of attending; but then it is equally clear that the object attended to is not the passing modification of our own finite consciousness. This modification belongs to the other side of the antithesis. It is a specific mode of attentive consciousness, not a special object attended to. Wundt has here something to learn from Reid's polemic against ideas considered as objects. As regards (2) we have only to consider what takes place when in consequence of attention a new content emerges into consciousness.

or becomes intensified. It is sheer confusion to say that attention acts upon the content itself. It excites psychical pre-dispositions, or it initiates muscular movements which adapt the sense-organs for the reception of a certain kind of stimulation. Stated in physiological terms, what occurs is that a wave of nervous disturbance spreads so as to discharge other nervous elements, giving rise at the same time to vaso-motor changes, and, it may be, to muscular contractions. Of course, the case in which a pre-existing presentation becomes more differentiated is substantially identical with that in which a new content emerges. The emergent differences are new contents. In brief, we may say that when and so far as a content is already in consciousness, attention has done its work, and that before it is in consciousness it does not exist, and so attention cannot act on it. Wundt's way of speaking of presentations as a kind of material which is moulded and transformed by a supervenient activity must therefore be regarded as, to say the least, very misleading.

§ 7. FIXATION AND REMISSION OF ATTENTION.

Most recent writers on the subject treat attention in a way which diverges widely from that found in the preceding chapter. Their discourse is mainly of muscular adaptation of the sense-organs, vaso-motor adjustments, and so forth. Now, I am very far from being blind to the great importance of such considerations. The reason why I have hitherto disregarded them is that they do not appear to me to constitute the essence of the attention-process. Attention is the direction of thought (in the widest sense of the word) at any moment to this or that special object in preference to others. The attention-process is the psychical process which coincides with such definite direction of thought. Muscular adjustments of the sense-organs, vaso-motor changes, etc., are means of pro-

ducing, vivifying and detaining sensations, or other modes of presentational consciousness. Indirectly they also serve to intensify and sustain, and even help to initiate attention-processes in which these modes of presentational consciousness are implicated. They are thus ways of fixing attention, and their remission supplies means of remitting attention. More accurately, they constitute the instruments by which the attention-process fixes and remits itself.

Fixation and remission are motor or quasi-motor processes. They consist in muscular movement, initiated by precedent mental change, and reacting in its turn so as to sustain and intensify the conscious process which gives rise to it. The justification of this view will appear when we come to details. It will be most convenient to deal separately with attention (1) to perceived objects, (2) to imaged objects, (3) to objects of imageless apprehension (general topics).

1. *Fixation of Attention to Perceived Objects.*—By appropriate adjustment of the organs of sense we are able to render our sensibility to this or that kind of stimulation more intense or more delicate, and so to give to the selected stimulus a predominance over competing impressions. We may fix the eyes on an object ; we may, in a certain measure, prepare the ear for the reception of sounds of a certain pitch ; we may actively touch or taste or sniff the air for an odour. In this way we can single out the sensible qualities presented through this or that special organ ; we have also a further power of selection within the sphere of each special sense. We can move the eye so as to bring each part of the field of view in turn within the range of distinct vision.

The immediate effect produced by these sensory adjustments is fairly comparable with the effect produced by other devices for increasing our sensibility, such, *e.g.*, as the use of a magnifying glass. From this point of view we have as much justification for regarding the putting on of a pair of spectacles

is an attention-process, as we have for regarding ocular adjustment in this way. It is broadly true that we rarely accommodate our sense-organs for the reception of impressions from an object, unless we are attending to that object. But this fact seems fairly explicable on our general view of sensory accommodation as an arrangement for intensifying and maintaining attention, and not as belonging to the essence of the attention-process itself. There is no reason or motive for using the means except when they are conducive to their appropriate ends. It is therefore no matter for surprise that we do not usually fix our eyes on an object unless we are taking notice of it. A further explanation lies in the fact that a considerable portion of the sensory material required for the perception of sensible things consists of the motor experiences which accompany the movements of adjustment. Apart from these experiences, the systematic complexity necessary to the attention-process is lacking. It should also be noted that the coincidence between attention and sensory accommodation is not invariable, and that it is by no means exact. The exceptions to the uniformity of the connection are most patent when we consider the possibility of attending to sensible things without corresponding sensory adjustment. Usually no object lying in the margin of the visual field attracts our notice without at the same time provoking the ocular movements which bring it into the point of most distinct vision. But it is possible by a special effort to keep the eyes fixed on one object or "to look in a given direction without fixing any object whatever,"¹ and simultaneously to attend to marginal imagery. If I close my eyes and attend to after-images and to retinal phantasms, I can at will, though with some little difficulty, select for special consideration this or that portion of the purely "subjective" field.

¹ A. F. Shand, *Mind*, N.S., No. 12, p. 452.

If we turn from sight to touch, the exceptions found are much more numerous. For the most part, indeed, I attend only to those tangible qualities which I have experience of by active touch. But it is by no means an uncommon occurrence for me to attend to purely passive touches, and to skin-sensations which arise without external stimulus.

It is also possible to accommodate for the reception of impressions from an object without attending to it. We occasionally on waking up from internal reverie or reflection surprise ourselves in the act of gazing fixedly at some person or thing in front of us. We look without seeing. More striking and easily verifiable evidence is supplied by what ordinarily takes place in reading. Convergence of the eyes, accommodation of the lens, and so forth, are continually taking place as we pass from letter to letter and from word to word. But a practised reader does not usually attend to the letters and words; his thoughts are occupied with the meaning. It sometimes happens that in reading aloud a person may allow his mind to wander, so that the reading becomes an automatic process. The ocular adjustments are as necessary as ever, though attention both to words and meaning has ceased.

We have said that the coincidence between attention to sensible objects and sensory accommodation, even when it exists, is frequently not exact. This can be shown for each of the special senses. Our power of selective adaptation is perhaps greatest in the case of vision. We can, for instance, bring into special prominence either form or colour. In order to emphasise form we follow the outline of an object; in order to emphasise colour we omit to trace the boundaries of different colours, and merely allow our eyes to wander without restriction over the coloured surface. But though our power of selection within the sphere of the visual sense is large, it has rigid limits. We cannot by any kind of muscular accommodation give special

salience to the intensity of a colour as distinguished from its quality, or to its degree of saturation as distinguished from its intensity. We cannot, in a bluish-green, by any muscular adjustment, give salience to the blue rather than to the green. In such cases we sometimes have recourse to direct comparison. We compare different colours of like intensity, or like colours of different intensity. In order to bring into special prominence the blue in a blue-green, we compare with a relatively pure blue, either actually perceived or mentally imaged.

But our procedure is not always of this kind. We often notice this or that aspect of a sensory quality without any comparison with other qualities. All depends upon the direction of our interest at the moment. If I find a bluish-green where I expected a pure green, it is the blueness that I notice, even though it be only a faint tinge.

The main direct accommodation for sound is by contraction or relaxation of the *tensor tympani* muscle. By this the tension of the tympanic membrane is increased or diminished. When the membrane is tense, it will respond readily to high sounds; when it is relaxed, it is better prepared for low sounds. There is thus scope for a certain amount of selective adaptation. We may also turn our heads in the direction of the sound in order to hear it more distinctly. But the attitude of listening seems mainly to consist in the discontinuance of all movements of a disturbing kind, and in the assumption of a fixed posture by a balanced action of antagonist muscles. In general, the discrimination of one simultaneous sound from another does not depend on any special muscular adjustment, but on previous mental training. The skilled musician can disengage overtones from the complex note to which they belong when the untrained person finds such analysis impossible. It is obvious that the distinction between loudness, pitch, and timbre is analogous to that between the quality and intensity

of colour, so far as its relation to sensory accommodation and attention is concerned.

The selective power of active touch is analogous to that of the visual sense. We may explore the surface of a body by movements of the hand or of the finger tips, as we explore it by movements of the eye. But there is no modification of active touch by which we can detach for special consideration tactile impressions from accompanying temperature impressions. There are probably separate points on the skin which are predominantly sensitive to contact, heat, and cold respectively. But these points are too minute and too closely contiguous to allow of their being used separately.

In the case of flavours, tastes, and odours, we have it more or less within our power to increase our sensitiveness. We can intensify a taste or flavour by rolling the sapid morsel on the tongue, and we can better catch an odour by taking a stronger inspiration. Beyond this our power of selective adaptation does not appear to extend. Muscular accommodation does not help us to fix attention on one constituent of a complex flavour to the disregard of the others.

It is obvious that, if we take into account the limitation of attention by special interests connected with the more abstract modes of thinking, the want of coincidence between selective attention and selective sensory accommodation becomes much more conspicuous, and might be illustrated at great length.

For the reasons assigned, we must reject such a statement as that of Professor Sully that muscular sensation is to be regarded as "the main determinant factor in the process"¹ of sensational attention. Muscular adjustment is the support of attention, but not, strictly speaking, an integral part of it. Professor Sully himself admits that other factors are involved. He notes especially that, in the case of sensations of sound, "where

¹ *Human Mind*, p. 149.

local distinctness and correlated muscular adjustment are wanting, minute analytical attention is rendered difficult, and it is here that the co-operation of cerebro-ideational activity in analytic attention becomes most important".¹ What he fails to see is that these two factors are disparate and ought not to be classed together. What he calls "cerebro-ideational activity" is the immediate and essential condition on which the direction of thought depends. Sensory adjustment is merely an arrangement for intensifying and detaining sensations, in the service of the "cerebro-ideational" process. Attention is not the vivifying or fixing of sensory modification, but the direction of thought to this or that object in preference to others.

Professor Sully alleges that the motor accompaniments of sensory attention contribute the characteristic psychical feature of the process, *viz.*, the sensation of tension, strain, or exertion. Now, it is certainly true that when a special effort of attention is being made, sensations of muscular strain form a prominent and characteristic part of the total psychosis. But it does not seem at all clear that they are the specially striking element in the ordinary flow of attention, when no special exertion is required. It was open to Professor Sully to restrict the application of the word *attention* to cases of exceptional effort. But he is far from doing so. He actually holds it to be doubtful "how far during the maintenance of conscious life we ever realise a state of inattention".² It appears, therefore, that Professor Sully, like ourselves, includes under attention not only exceptional exertions, but all noticing of objects. Now, as we have said, sensations of muscular strain do not appear to be a very salient feature of ordinary perception, where no specially intense or prolonged effort is made. It would thus seem that the prominence of the

¹ *Human Mind*, p. 159.

² *Ibid.*, p. 145.

experience of strain is characteristic, not of sensory attention in general, but only of a special class of cases. It seems clear that only sensations of *strain* require to be considered. The ordinary muscular experiences which accompany such movements as the convergence and divergence of the eyes can scarcely be regarded as a distinctive ingredient of attention-consciousness. Such experiences are generally regarded as forming an integral part of our space perceptions, and we are scarcely justified in counting them twice over. Finally, the position against which we are contending is open to all the objections which we have previously urged against identifying mental activity with any particular group of presentational experiences.

Sensory accommodation is not sensory attention, but only a means of sustaining and promoting it. At the same time it must be admitted that the function it discharges is not merely important but actually indispensable. If we had no means of singling out from the crowd of impressions which solicit our senses from moment to moment the restricted group which at any time has interest for us, it is difficult to see how our mental life could go on. It is impossible to see how its more rudimentary stages, which are almost wholly perceptual, could exist at all. If we may use such a simile, an organism deprived from birth of all power of selective sensory adjustment, would on the mental side be comparable to an animal incapable of seizing its food by prehensile movement. The animal would starve, although prehension is no more identical with the assimilation of nutriment than sensory accommodation is identical with attention.

The full importance of sensory fixation can only be estimated when we take into account its negative or inhibitory as well as its positive aspect. With the positive movements of adjustment is combined, as an integral part of the same act, the partial or complete suspension of other movements.

When the highest pitch of concentration is reached, there is a complete convergence of all movement towards the one end of fixing and detaining those sense-impressions which take part in the systematic attention-process—the general direction of mental activity at the moment. “It is evident that a general stillness or motionlessness of the body is useful to close sense-observation. The keeping of the eyes and head *steady* already illustrates the inhibition of movement. Other illustrations of it are the cessation of locomotion when we want to listen or otherwise attend to sensations. Even the slight disturbing movements due to breathing are inhibited when we attend with the higher degrees of intensity. A man looking intently will involuntarily hold his breath. This inhibition of movement must be carefully distinguished from *relaxation* of muscular activity. It is . . . brought about by tension in opposing muscles, and so adds new elements of conscious strain to all the more energetic forms of attention.”¹

We have already discussed our inability to attend to more than one object at a time, so far as this inability depends on the intrinsic nature of the process of *attending*. We may here notice Dr. Bain’s doctrine, according to which the limits of attention are strictly coincident with those of muscular accommodation. “Our limitation of attention to one thing at a time, in so far as that limitation holds, is due to the fact that we have only one set of executive organs, and that these organs cannot be operating in more than one direction at one moment.” Now, there can be no doubt that a limitation of this kind exists, and that it is very important; but it is equally certain that it is not the only condition to be taken into account. The mere mechanical possibility of simultaneously accommodating for different impressions is one thing; the possibility of including these impressions as con-

¹ *Human Mind*, p. 149.

stituent parts of the systematic process of attention is another. For this it is necessary that they should be so related as to possess a common significance. We can listen to a man's words and at the same time observe the play of his features, if we interpret language and gestures as mutually complementary signs of meaning. An experimenter who, while following with his eyes the movement of a pendulum, hears at regular intervals the sound of a hammer falling on a bell, may attend simultaneously to both the ringing of the bell and the swing of the pendulum. But he can only do so by representing the sound as connected with the movement, *e.g.*, as caused by it.¹ The motor process by which we fixate percepts generally depends on their connection with the general direction of mental activity. We must allow for the limitation due to our having only one set of executive organs, which cannot be operating in more than one direction at once. But apart from this limitation, it would seem that however complex a percept may be, it is capable of being apprehended by a single movement of attention if it is capable of entering into and sustaining the systematic unity of mental process at the time. On the other hand, whatever is irrelevant to the predominant interest of the moment is necessarily ignored.

2. *Fixation of Mental Images.*—As mental images involve a partial and modified revival of corresponding perceptions, they include a partial and modified revival of the motor concomitants of the original perceptual process. These revived motor innervations constitute a means of intensifying the image with which they are connected. This doctrine, which was first distinctly advocated by Bain, has now become a psychological commonplace. It is not always stated with adequate precision ; hence to prevent misunderstanding

¹ Wundt's *Physiologische Psychologie*, 3rd ed., vol. ii., p. 237.

it is necessary at the outset to draw attention to one or two points. (1) It is not implied that muscular presentations, whether primary or revived, are radically different in nature from other sensory experiences. It is not the reproduction of sensations having their peripheral origin in the muscles and joints which fulfils the function of fixing and detaining the images of which they form part; the operative factor is the partial re-instatement of the motor innervation itself—the partial revival, to use Bain's language, of the nerve current, which in the original perception set the muscles in action. It is a matter of comparative indifference whether or not we hold the outgoing current to have a concomitant in consciousness. It can perform the function of intensifying the revived sensory complex with which it is physiologically connected equally well without any such psychical counterpart. In so far as the motor innervation actually produces nascent muscular contraction, the corresponding sensation forms an additional and, it may be, an important factor in the process of fixation. (2) The revived movements are not merely revived processes of sensory adjustment. Any muscular actions which are intimately combined with a perceptual process may serve as a means of fixating the corresponding image. Thus the movements of articulation reproduced in an inchoate manner serve to fix the ideal revival of the corresponding articulate sounds. (3) The reason why revived movement is capable of discharging this special function is that our control over it is analogous to our control over actual movements.

It is quite possible to fix attention on an image by means of actual movement. Thus we may obtain a clear image of a geometrical figure by tracing it in the air with the tip of the finger; the same result may be produced by a corresponding movement of the eyes. Similarly, we may by movements of the organs of speech strengthen the representations of an articulate sound without actually uttering it. So, too, we can,

by greater or less convergence of the eye, help ourselves to picture an imaged object as situated at a greater or less distance from our bodies. Even when attention to imaged objects is not accompanied by actual movements, it often involves a considerable tension of the muscles, similar to that which arises when we make an effort to move, and at the same time by a counter-effort arrest the intended movement in its first inception. Thus, when we strongly fixate a visual image, we feel a muscular strain localised in the ocular cavity; muscular sensations of this kind are very much intensified by an attempt to accelerate the speed with which one image succeeds another. If I endeavour to repeat mentally a verbal formula, hurrying through it with the greatest possible activity, the strain in the organs of articulation becomes painfully intense. The same thing happens, *mutatis mutandis*, if I endeavour to bring before my mind's eye in very rapid succession the parts of a remembered scene. In all such instances the excitation of the muscles concerned gives rise to motor sensations which form an impressional constituent of the image. Their superior vivacity serves to reinforce the corresponding elements of the ideal complex, and so indirectly to intensify the complex as a whole.

For the most part, however, the fixation of images is not accompanied by overt movement or by any very appreciable muscular strain. But there are cogent reasons for believing that even when these are absent, there is a modified revival of the same motor impulses which enter into the corresponding perceptual experiences. Nearly all images are, to some extent, images of movement. They have been built up out of repeated perceptual experiences, involving movements of accommodation, etc. Now, all ideal representation of movement seems to involve a motor innervation; a represented act is the act itself in its commencement. Evidence of these motor tendencies is supplied by the cases in which they pass over into

actual movement, or marked muscular tension. To those above cited we may add the instances of action due to fixed ideas. "There are people," says Ribot, "who plunge head foremost into yawning chasms, through fear of falling into them; people who cut themselves with razors, through the very fear of cutting themselves." Perhaps, however, the best example is supplied by ordinary thought-reading, which is merely an interpretation of slight muscular indications. Apart from such special reasons, there is a very strong *a priori* assumption that the motor current must tend to be reproduced along with the whole systematic physiological process of which it forms a part.

We have said that our control over revived movement is analogous to our control over actual movement, and it is for this reason specially adapted to furnish us with a means of fixing and detaining the complex presentation with which it is connected. To show that this is so, we have only to point out that the more intimately a given experience is connected with motor processes peculiar to it and distinctive of it, the greater is our command over it in ideal representation. Perhaps the best example is that of internal language. Let any one select for mental experimentation any word or sentence; he will find that he has almost as great a control over the internal articulation as over the external. The chief restriction appears to lie in the inability to make the represented sound as loud as the actual sensation; but, apart from this, one may do almost what one likes with it. We may repeat it thousands of times with unfailing definiteness, precision, and certainty; we may say it rapidly or slowly, with emphasis or without emphasis, or with an emphasis that varies; we may even invert the order of the sound with as much freedom as in actual utterance. The same holds good with the simpler geometrical figures. We can trace them mentally much as we trace them physically. On the whole, our mental control over representa-

tions which contain less distinctive and peculiar images of movement, is decidedly more limited. Even those who have an exceptionally good memory for smells, can hardly retain them in consciousness with a certainty and facility comparable to that with which they internally repeat an articulate sound. In representing the smell we have to make more use of auxiliary suggestion. We picture the odorous object, or name it to ourselves. In any case, to keep steadily before our minds the smell of a wall-flower for ten minutes requires a much greater effort than to do the same in the case of a represented word. This is because the act of sniffing has no specific connection with this or that special kind of odour rather than with any other. The same remark applies also to colours. But in this case there are so many indirect means of recall at our command,¹ that the want of definite movements distinctively connected with the several colours is not so much felt. Of course it must be clearly understood that the question here raised does not relate to the comparative degrees of vividness with which different kinds of sensory experience can be revived, but only to the kind and degree of control which we have over the corresponding imagery. This depends also on the comparative revivability of different kinds of presentations; and perhaps, in some cases, those in whom colours and odours are specially easy to recall, owing to the connate constitution of the nervous system, may find a difficulty in verifying the above statement. But most people who give the matter due consideration will easily be able to corroborate what has been said.

The efficacy of revived motor process in fixating images is best understood when we consider its negative or inhibitive aspect.

¹ Colour-names play an important part, and we are greatly aided by the association of colour with shape. Probably also the existence of nerves carrying currents from the brain to the sensitive periphery ought to be taken into account.

Just as in the case of actual sensory adjustment, so in the fixation of images, positive movement in one direction is accompanied by abstinence from movement in other directions. This means the arrest of other images, for, on the physiological side at least, motor innervation forms an integral part of mental imagery. Where it is absent, therefore, the image, or at least the physiological process with which it is correlated, must remain mutilated and fragmentary. For this reason, it cannot emerge into consciousness save in a vague and anoetic manner. The absence of the motor factor destroys its systematic complexity, and thus disables it from entering into an attention-process.

We have, I think, done full justice to the importance of revived motor process as a means of fixation; but we must insist, as we did in discussing sensory accommodation, that it is merely a means of fixing attention, and not an essential part of attention itself. We can, by its aid, vivify and detain mental imagery; but it is the interest of the moment, the general direction of mental activity, which determines what special aspects or features of the image have significance for thought, and so enter into the systematic process in which attention consists. If I mentally picture a bird, I may be interested either in its shape, its flight, its colour, or its song. Whatever constituents of the image are disconnected with the point which interests me, are irrelevant. They do not form an integral part of the attention-process, although they may be intensified or detained by motor fixation.

It is possible to fix an image without attending to the corresponding object. A conspicuous and wide-reaching example of this is furnished by internal speech in its ordinary use. We do not usually think of the words which accompany our inward thoughts, either as sounds or as articulations; what we think of is the meaning. The sounds themselves are not attended to, and the motor innervation which serves to fixate

them only indirectly supports the attention-process, because of the peculiar function discharged by words, as signs.

3. *Fixation of Attention to General Topics.*—The topic which at this moment engrosses my mind is the psychology of attention. My thoughts continue to be concentrated on this topic, while a series of images, mostly verbal, succeed each other in consciousness, each representing some partial aspect of this total and permanent object. The same topic thus receives gradual definition as my thought develops step by step. The total object on which attention is fixed consists, as a rule, of both the topic and the object of the transient image, except in the momentary intervals of transition between one discrete image and another. These intervals are not mere empty gaps; an awareness of the general drift and purport of our thoughts is retained in them, so that as each image emerges we immediately feel obstruction or advancement of the current of mental activity. To Professor James belongs the credit of having most fully and clearly exhibited the nature and importance of these "transitive states". The stream of consciousness, "like a bird's life, seems to be made of an alternation of flights and perchings. . . . The resting-places are usually occupied by sensorial imaginations of some sort . . . the places of flight are filled with thoughts of relations, static or dynamic, that for the most part obtain between the matters contemplated in the periods of comparative rest."¹ Often the sole link connecting an image with its predecessor in the train of ideas is to be found in their relation to a common topic. These transitive states of imageless attention are often especially noticeable when our thoughts are suddenly diverted from one absorbing topic to another of heterogeneous nature. After our preoccupation it requires an effort to collect ourselves. While we are making

¹ *Psychology*, vol. i., p. 243.

this effort there is nothing that can be called a train of ideas in consciousness, but only a changing mental attitude. The subject which previously engrossed our attention may continue for a time to retain a considerable hold on our minds. It can be dismissed only by degrees. The necessary readjustment cannot be suddenly completed. The old theme may haunt us like a restless ghost, but its presence is vague and shadowy. No definite sensorial image connected with it emerges into consciousness. It is simply a disturbing influence in the background.

It is obvious that the fixation of images is an indirect means of fixing attention on the connected topics. We have now to inquire whether there is any more immediate and independent means of fixing imageless attention. It does not seem possible that the revival of specific motor processes, which is so important in the case of images, can play any part here. There appears to be only one means of fixation,—that depending on the distribution of the nutritive supply to the various parts of the brain. As a rule, the functional activity of any part of the organism produces an increased flow of blood to that part through the action of the vaso-motor mechanism or otherwise. May we assume that the nutritive supply to particular portions of the brain varies in this way? There are writers who seem to regard this as beyond the range of reasonable doubt. But others have misgivings, and some expressly deny the existence of special vaso-motor nerves regulating the calibre of the small cerebral arteries. The following is Professor Michael Foster's judicial statement: "Seeing that the cerebral arteries have well-developed muscular coats, . . . one would be led to suppose that the brain possessed special vaso-motor nerves of its own; and recognising the importance of blood supply to rapid functional activity, one would perhaps anticipate that by special vaso-motor action the supply of blood to this or that

particular part of the brain might be regulated, apart from changes in the general supply. The various observations, however, which have hitherto been made have failed to demonstrate with any certainty any such special vaso-motor nerves or fibres directly governing cerebral vessels. . . ." ¹ But "the flow of blood to, and consequent change in the bulk of, the brain, and indeed the flow of blood through the brain, as measured by the venous outflow, may be modified independently of changes in the general blood-pressure. For instance, stimulation of the motor region of the cortex quickens the venous outflow, without producing any marked change in the general blood-pressure. . . . It is difficult not to connect such a result of functional activity with some special vaso-motor nervous arrangement comparable to that so obvious in the case of a secreting gland. . . . In spite of the negative results so far obtained, the matter is obviously one needing further investigation. Meanwhile we have abundant evidence that, however brought about, the flow of blood through the brain, and probably through particular parts of the brain, is varied in accordance with the needs of the brain itself." ²

Concerning the physiological problem here raised we have nothing to say. But, as psychologists, we may inquire how far the probable hypothesis that the distribution of blood within the brain is regulated according to the local demand for it is in accordance with psychological data. (1) This hypothesis helps us to understand how we are able to keep our thoughts persistently fixed on one topic at a time to the exclusion of others, and so to avoid that state of distraction which involves the destruction of the attention-process. If we suppose a vaso-motor mechanism regulating the local distribution of the nutritive supply within the brain, then concentration of attention in one definite direction will involve a certain systematic

¹ *Text-book of Physiology*, 6th edition, part iii., pp. 1136, 1137.

² *Ibid.*, p. 1138.

vaso-motor adjustment, producing increased flow of blood to certain parts and a correspondingly diminished flow to others. A change in the direction of attention from one topic to another and disparate topic, will involve a systematic readjustment of the vaso-motor mechanism. Thus no excitations can divert attention from its previous direction unless they are sufficient to produce more or less complicated vaso-motor changes. (2) It also helps us to understand certain instances of what may be called *preparation to attend*. The most remarkable of these belong to the phenomena of sleep and awakening. Dr. Lehmann tells us how for a whole night he was distinctly aware of all the various sounds in the streets, such as the striking of clocks, without being awake to any other kind of stimulus. In the morning his eyes were fit for service and he felt generally fresh, in marked contrast to the usual effect produced in him by a really sleepless night. The experience of most persons will furnish instances of a similar kind. Dr. Lehmann points out that, as a rule, we do not go to sleep all at once, but, so to speak, in instalments. We cease to be awake to visual impressions while still remaining more or less aware of sounds and of the position of our limbs. The phenomena of waking are important in this connection. Even a sound sleep may be broken by a slight external stimulus which has a special interest for the sleeper. The mother will awaken at the slightest sound from the sick child, though much louder noises fail to disturb her. "The following is an experience with which the medical practitioner (at all events the accoucheur) is not unfamiliar. Having been disturbed perhaps several nights in succession, he is again called to the bedside of a patient in labour, and he finds he must wait for some time. The feeling of drowsiness soon becomes strong, and the talk of the gossips does not prevent him from falling asleep while sitting in his chair. But with the slightest expression of suffering from his patient he is at once awake."

In such instances there is a localised excitability combined with general inexcitability. It is at least a tempting suggestion that the localised excitability is partly due to a previous vaso-motor adjustment by which certain definitely restricted portions of the brain are supplied with blood in such a way as to fit them for work, while the remainder of the brain is disabled from action by the peculiar vaso-motor adjustment characteristic of sleep. If this be so, the same condition will of course be operative also in those preparations to attend which take place in waking life. (3) Dr. Lehmann has applied the same hypothesis to the explanation of the phenomena of the hypnotic trance, and especially to the fundamental peculiarity of it, which consists in the hypnotised person being awake to impressions and suggestions from the hypnotiser, and invincibly asleep to other modes of stimulation. Persistent attention to a monotonous and wholly uninteresting stimulus causes fatigue and general stagnation of mental activity. It therefore tends to induce sleep. If the subject is left to himself he gradually sinks into a state hardly distinguishable from ordinary sleep. But he is not left to himself. Throughout the whole process his attention is more or less occupied with the proceedings of the operator. His mind accordingly remains fixed in an attitude of response to impressions coming from this source, even when it is becoming insensible to all else. The hypnotiser, availing himself of this special *rappport*, interferes to arrest the process of somnolence midway. Suggested ideas and actions keep the subject in a state of partial wakefulness, causing him to dream a series of dreams having as their common centre and starting point the persistent presentation of the hypnotiser. According to Lehmann, such one-sided fixation of attention has as its physiological counterpart a fixed vaso-motor arrangement, by which only a certain limited portion of the sensorium is supplied with nutrition adequate to sustain mental activity. In

hypnosis there is a tetanic contraction of certain blood-vessels, producing an accelerated movement of the blood in the wakeful part of the brain. Lehmann lays more stress on rate of flow than on volume. His hypothesis seems in some degree to explain why, in deep hypnosis, the subject is insensible to even the most violent impressions which do not come from the operator. The impossibility of awaking the sleeper by ordinary means is one consequence, among others, of this fixed vaso-motor arrangement.¹

These considerations show that vaso-motor adjustments regulating the flow of blood to different parts of the brain *may* be a highly-important means of fixing attention. But at the best we cannot, in the present state of our knowledge, get beyond more or less plausible hypothesis. We need some certain and definite physiological doctrine before we can make any secure advance on the psychological side. We have so far spoken only of the vaso-motor process as an arrangement for fixing attention on topics; but of course what has been said applies also to the case of percepts and of images. What is peculiar in the case of attention to topics is that there seems to be no other assignable motor process of fixation.

¹ *Die Hypnose und die damit verwandten normalen Zustände*, von Alfred Lehmann. Leipzig: O. R. Reisland, 1890.

CHAPTER III.

FURTHER QUESTIONS RELATING TO ATTENTION.

§ 1. INTEREST AND ATTENTION.

IT is commonly said that attention depends on feelings of pleasure and pain. "A bright colour," says Sully, "a sweet sound, and, on the other hand, a hard grating noise, attract the attention by reason of the feeling that they excite." Again: "When it is said that we attend to what interests us it is meant that we attend when our feelings are touched, that is, to objects or ideas which directly or indirectly excite feeling".¹ He accordingly speaks of pleasure and pain as determinants of attention. Now, it is undeniable that attention and interest, disagreeable or agreeable, are coincident.² We cannot be feeling an interest in an object without attending to it, and we cannot be attending to it without feeling some kind or degree of interest in it. Where the interest is very slight and transient, attention is also slight and transient, and *vice versa*. But the two always go together. There is, however, a fallacy in the ordinary doctrine of their connection. The assumption that attention *depends* on pleasure-pain seems to have no sufficient basis. The relation is not one of cause and effect. The coincidence of interest and attention is simply

¹ *Human Mind*, pp. 162 and 163.

² The mode in which this statement applies to voluntary attention will be considered in § 3.

due to the fact that interest, as actually felt at any moment,¹ is nothing but attention itself, considered in its hedonic aspect. There is an ambiguity in the statement that we attend to things because they interest us. The things referred to may be things as they actually exist independently of us and our thoughts about them. In this case, the meaning is that they will not become objects of our attention unless they become objects of interest. But when once we have begun to think about them, interest and attention do not seem to be related as antecedent and consequent, but rather as different aspects of the same concrete fact. Stumpf, indeed, goes too far when he says, "attention is identical with interest"; but the distinction between them is simply that the word *interest* carries with it a reference to something else as well as to attention as a mode of mental activity; this something else is the pleasure-pain tone of the attention-process.

The full justification of this statement must be postponed until we come to speak of the genetic conditions of pleasure-pain. Here it is sufficient to point out that the process by which a presentation attracts attention to its object cannot usually be separated from the process by which it excites the agreeable or disagreeable feeling connected with the act of attending. The object attended to may be a means to the satisfaction of a desire, or an obstacle in the way of such satisfaction. In either case, the pleasant or painful feeling involved, as springing out of the furtherance or thwarting of our practical aims, is coincident with the apprehension of the object, and of its significance for us. It logically presupposes attention, and cannot therefore be an antecedent condition of it. This is especially obvious where the interest is theoretical;

¹ Perhaps, in its most common use, the word *interest* stands for a permanent disposition or capability of being actually interested. Thus we may say of a person that he is "interested in mathematics," although he may not at the moment be thinking of mathematics at all. A similar remark has already been made in reference to desire.

we cannot feel satisfied with an object because it gratifies our curiosity, or dissatisfied with it because it puzzles us, unless we have already begun to attend to it.

There is, however, a certain group of instances coming under this head which seems to require special consideration. I refer to those cases in which there is mental distraction due to a conflict of interests. I am attending to one thing, interest in it being bound up in the process. But I have another and contrary interest struggling to divert attention to its object. It may be outside the special area of attention; but I feel it. Suppose now after a little I yield, and allow it to control attention. Then the interest would seem to be a cause of my attending. It has existed antecedently to attention; and has, it would seem, brought about attention as a consequent. In dealing with this case we have to consider two points—one verbal and the other real. The verbal question is—Can we properly be said to be actually feeling interest in something when we are not actually thinking about it? To me such a use of language seems out of keeping with common usage, and inconvenient for scientific purposes. It is true that, in the case supposed, the object which solicits attention without being actually attended to, does so because it is *interesting*. This is a common and natural application of the word. But when we call it interesting, we do not mean that we are actually feeling interest in it, but only that it tends to excite such interest. The *real* question at issue, as distinguished from the verbal, relates to the nature of this tendency. We have to decide whether the tendency to divert attention is due merely to the experience of pleasure-pain as such, or whether on the other hand it is due to an excitation of special mental dispositions,—pleasure-pain being involved only as the hedonic tone of the process. Now, if we take instances in which the hedonic tone of sensations, as such, is so small as to be negligible, then, *ex hypothesi*, the excitation of preformed mental

dispositions is implied as a necessary condition of the existence of the pleasure-pain. The object is interesting, because it has significance for our practical or theoretical needs. It can, therefore, only arouse interest by exciting systematised residua of previous experience. Only in so far as it effects this is it capable of giving rise to pleasure or pain. But in so far as it effects this, we have already an inchoate and transitional stage of the process which in its developed form we call the attention-process. It would seem, therefore, that the pleasure-pain which precedes and introduces attention is only the hedonic aspect of attention itself in a nascent form.

Instances of the pleasures and pains of sense are more ambiguous. In their case, it may be maintained with more plausibility that the pleasure or pain first pre-exists, and then arouses attention. This contention, however, does not appear to be based on any cogent reasons. Sensations may be pleasant or painful without exciting or forming part of an attention-process; thus a measure of bodily discomfort arising from organic sensations may accompany a train of thought which has no reference to it. But when the sensation does arouse attention, its agreeable or disagreeable tone becomes intensified; now the real question at issue is whether this intensification is an antecedent or a concomitant of the act of attending. In some instances the augmented hedonic intensity is not traceable to any change in the conditions of external stimulation. When this is so, there seems to be no other reason assignable for it except attention itself. When the train of thought has ceased, the bodily discomfort which it had previously obscured becomes a more prominent element in the total psychosis, because at the same time the corresponding organic sensation becomes an object of attention. The initiation of the attention-process is coincident with the initiation of the intensified pleasure-pain. In other instances, the intensification may arise from augmentation of the external

stimulus, or it may be a cumulative effect due to the persistence of this stimulus. When this is so, the impressiveness of the sensation may be sufficient to interrupt a pre-existing train of thought at the acme of its interest. Here the question arises whether the intensification of the sensation first occasions intensified hedonic tone, and then, as a consequence, attracts attention ; or whether, on the contrary, the same augmentation of the stimulus which occasions increased pleasure-pain, at the same time and by the same process occasions that disturbance in the equilibrium of a preformed psycho-physical system which is the commencement of the attention-process. It is safe to say that no definite reasons can be given for preferring the first assumption to the second. So far as the hedonic tone depends on this diffused excitation, the assumption is obviously self-contradictory. But even if we take into account only the pleasure-pain quality of the sensation itself, it is not legitimate to ascribe exclusively to its hedonic quality the initiation of the attention-process. This process has a quite-specific and distinctive character, which is conditioned by the specific and distinctive character of the sensation, and not by mere agreeableness or disagreeableness. Pleasure, as such, abstractly considered, is always identical in quality wherever it occurs, and the same is true of pain ; but differentiated effects presuppose corresponding differentiation in their causes.

The movements of fixation depend on the attention-process itself. Their specific nature and direction in each instance is determined by the specific nature and direction of this process. In this respect they do not differ from any other motor-innervations which are not automatic or reflex. All depend on conation, and the conation of a thinking being, as such, is attention. Thus feelings of pleasure and pain can only determine movements in so far as they determine attention, and we have just seen that they do not determine attention as antecedent conditions.

§ 2. CONTRAST OF PLEASANTLY AND PAINFULLY TONED
ATTENTION.

But there is another mode in which pleasure-pain may influence the attention-process. It is common to lay down as a fundamental law of human activity, that actions which are painful tend to be discontinued or reversed, and that actions which are pleasurable tend to be continued, intensified, and developed. Now, in so far as this law holds at all, it must hold in relation to the attention-process. It is of essential importance to investigate its import and validity at this stage. We shall first examine the facts and then consider the inferences they appear to warrant.

At the outset it must be admitted that there is a tendency to withdraw attention from disagreeable objects. This is most obvious where we in the first instance are more or less constrained to attend by the obtrusive intensity of sense-impressions, without having any special interest in the object, derived either from intellectual curiosity or practical desire. In this case we are able in most instances to dismiss the object from our thoughts merely by discontinuing the movements of fixation or by excluding the external impression by means of appropriate movements of the organism. If we are annoyed by a glaring light, we look away from it or close our eyes; if we are disturbed by a harsh sound, we may put our fingers in our ears or walk away from the source of the noise. When we cannot effectively rid ourselves of the disagreeable impression by any of these means, it still remains true that we should do so if we could. Besides this, attention becomes directly enfeebled by fatigue, and pain, whether bodily or mental, is peculiarly fatiguing.¹ The current theory, according to which

¹ When I speak of *bodily* pain and pleasure, or of the pain and pleasure of *sense*, I do not, of course, mean to imply that such pain-pleasure is not mental. I only mean that we are unable to assign its mental conditions, except in a vague and limited way. The manner of its genesis cannot be satisfactorily stated in psychological terms, but only in physiological.

pain arises when the wear of nervous tissue outruns repair, makes exhaustion the fundamental and essential physical condition of the existence of bodily pain. The reverse of all this of course holds good in the case of pleasant impressions. Now, suppose that we have some strong motive, practical or theoretical, for attending to a thing which gives us disagreeable sensations. We may take as an example the case of a scientific psychologist who listens to the music of savages in order to note it down. Here, also, there will exist a tendency to withdraw attention ; but this tendency may be much more than counterbalanced by the strength of the interest, which is disconnected with the disagreeable tone of the sensations. This counteracting impulse is not, however, a pleasure which overpowers accompanying pain. It may very well happen that the total psychosis is highly disagreeable. To the actual annoyance caused by harsh sounds there will be added the pain of conflict between a tendency to withdraw attention from them and a tendency to go on attending to them out of scientific curiosity. It may be said that the anticipated pleasure of successful investigation here supplies the place of actual pleasure. But even if we admit this, it is impossible to identify the forethought of pleasure with pleasure itself. The forethought may be operative only in so far as it involves desire without pleasure. Let us next suppose that a person working out a train of thought with a view to the solution of some problem, comes upon a contradiction in his reasonings which brings him to a standstill. This is always a disagreeable incident. The result varies according to the intensity and complexity of the attention-process, considered as a conation. This is conditioned by his sense of the special importance of the immediate problem, or by a general habit of mind which leads him to be interested in all theoretical puzzles, as such. If he be but slightly excited, the difficulty which he encounters may lead him at once to abstain from further consideration of the

matter. But if the excitement is strong, the result is very different. The painful conflict of contradictory ideas, instead of causing his attention to slacken, actually intensifies it. He becomes excited, and makes a strenuous effort to discover where his error lies. At the same time the disagreeableness of the experience appears still to involve a certain tendency to discontinuance of activity. This may be inferred from what usually happens when long-continued efforts prove futile. Overpowering disgust then gradually sets in, and the task is finally abandoned. None the less, we must take account of the fact that for a time at least activity continues and even becomes intensified in spite of the disagreeable tone of the total psychosis. Here also, as in the case of bodily pain, we must take account of the effect of exhaustion. The struggle with intellectual difficulties which bar the onward progress of a train of thought is peculiarly fatiguing ; and if the process does not otherwise come to an end, increasing fatigue brings about its enfeeblement and cessation. But in some cases where the interest is very strong, we may go on working at a puzzling problem long after intense weariness has set in. Turning from the sphere of theoretical to that of practical activity, we may take as a typical case the pains of loss or bereavement. Here again there is discernible a tendency to turn our thoughts away from the displeasing object to more agreeable topics. This tendency is most efficiently and unambiguously operative where the annoyance is comparatively slight. Where the deprivation is very serious, we brood over it. Great griefs are absorbing, more so, perhaps, than great joys. In some cases a whole lifetime may be embittered by them ; in other instances time brings healing, not by withdrawal of attention from the painful topic, but by a gradual change in the point of view in which it is regarded. This transition of acute grief into pleasing melancholy is at bottom an effect and an evidence of the general tendency to attend

rather to what is pleasant than to what is painful. This is the point we shall presently have to consider. What is here to be noted is the broad fact that the strength of our interest in an object will lead us to dwell on it long, intensely, and frequently, although that interest is of an extremely painful character. Lastly, there is one form of painful interest in which attention is fixed with a quite exceptional strength and persistency on the interesting circumstance. I allude to what is called anxiety, solicitude, or suspense. It is difficult to get rid even of a petty worry of this kind.

We may now sum up. The tendency of disagreeable feeling to produce abatement or cessation of attention to the object with which it is connected, is the less effective, the stronger our interest in this object is. Now, since the stronger interest involves more intense disagreeableness, we can only express this by saying that the strength of the interest, as such, is a condition which counteracts its painfulness. The painful interest, *quâ painful*, is unfavourable to attention; the painful interest, *quâ interest*, is favourable to it. In like manner a disagreeable sensation may excite attention in proportion to its intensity, while it tends to enfeeble attention in proportion to its exhausting painfulness.

The explanation is not difficult. The general positive condition on which the excitement of the attention-process depends, is the production in a preformed psycho-physical system of change, of such a nature that when the system recovers relative stability its inner constitution is appreciably modified. Now this condition is satisfied in as high a degree by painful as by pleasurable change. In both cases there is a disturbance of mental equilibrium, initiating a process which tends to its restoration. The difference between them is this, —where the interest felt is pleasurable, the process of readjustment goes on unimpeded; where the interest felt is disagreeable, the conditions which disturb equilibrium also per-

sistently hinder the process by which it tends to be restored. In both cases certain mental tendencies are roused into action. The realisation of these tendencies would be the restoration of equilibrium, and this is the way in which it actually is restored, so far as the process is pleasurable. But so far and so long as the conditions of pain continue, the tendencies are obstructed, and unless the obstruction is in some way removed, the only mode by which equilibrium can be restored is by their suppression or extinction. When and so far as a disposition to activity has been, not extinguished, but merely suppressed, the removal of the obstructing condition will, of course, occasion pleasure. This statement is somewhat difficult to verify for mere bodily pleasure-pain;¹ but even here it is capable of justification. For our present purpose, however, it will be sufficient to consider mental, as opposed to bodily, pleasure-pain.

Taking an example from the sphere of theoretical activity, let us suppose that a man of science, in the course of experimental investigation, comes upon a fact which yields the key to an important problem previously unsolved. He immediately follows up the clue, works it out in detail, and presents the world with his discovery. Here the initial disturbance of mental equilibrium consists in the opening out of a free path for tendencies previously repressed. He may or may not have attempted this particular problem before, and been baffled; but, in any case, the general thirst for knowledge, within his own department, constitutes a persistent tendency struggling for self-realisation, and finding only partial and occasional satisfaction at this or that part of the borderland between the known and the unknown. Since the initial mental change which excites attention is, by hypothesis, a setting-free of the striving which tends to become actualised in the successive steps of the process, it is a condition which merely excites without obstructing. Apart from the occur-

¹ For further discussion of this point see the final chapter of this work.

rence of unforeseen difficulties, the train of thought will work itself out freely and attain its end. This is a typical instance of the process of attention, when the interest is pleasing. On the other hand, if we suppose that the inquirer, after having followed up his clue, and made out his case to his own satisfaction, comes upon a fact which seems to upset his whole explanation, we have a typical case of painful interest. Here the initial disturbance of mental equilibrium is of an opposite kind. It consists, not in liberating a tendency previously repressed, but in repressing a tendency which previously had free scope. Consequently, the resulting process is of a different character. It takes the form of a struggle against an obstacle; it is a striving after an end which it is debarred from attaining by a positive obstruction. Thus a train of thought is at once excited and impeded by the same condition. In so far as it is impeded, its interest is disagreeable, and therefore, in so far as it is disagreeable, there will be a tendency to its abatement or cessation. The efficacy of this negative tendency is, however, counteracted by the positive excitement. The degree of positive excitement depends upon excitability of the psycho-physical system implicated in the process. If the investigator has a strong sense of the importance of the question at issue, he will attack it persistently, in spite of the vexatious obstacle which bars his progress.

Analysis of instances drawn from practical life yields a similar result. We may take as an example of painful interest the loss by death of a beloved friend. The primary and essential condition, both of the painful emotion and of the absorption of our thoughts in its object, is the repression of part of our own previous existence, which struggles to maintain and reassert itself. We have formed in our previous relations with the friend we have lost habits of thought and action which presuppose his actual existence, or at least our belief in his actual existence. The news of his death represses

these preformed tendencies by destroying a necessary condition of their satisfaction, and at the same time it excites them by producing deep changes in the mental preformation into which they enter. Thus, here, as in the theoretical case above given, the same circumstances at once positively excite the attention-process, and obstruct it ; and here also the negative tendency will be powerless when the positive excitement is intense. In the case of anxiety or suspense, the positive tendency derives peculiar strength from the possibility of alternate partial realisation and suppression of obstructed mental endeavour. A man who is awaiting the result of an examination, and feels in doubt whether he has taken a good or a bad place, at one moment may consider the favourable side, and picture himself as successful ; but in the next moment his mental expansion is followed by a forcible contraction as the possibility of failure obtrudes itself on his mind. The general nature of painful interest is well expressed in the following quotation from Mr. Bradley. " Mere loss, mere contraction of psychical existence, never pains us by itself. It does so only when some element feels itself thwarted or diminished, and for that we must have positive reaction and tension. If from the world which is dear to me you could isolate one fraction and extirpate it wholly, with all its memories and connections, then I should never feel the loss of it. It is where the element with its connections is left in part, and so reacts, that it becomes the seat of pain." ¹ It is scarcely necessary to contrast these examples of painful emotion with corresponding instances of agreeable emotion. The reappearance of a friend whom I never expected to see again, excites interest and attention as much as a sudden bereavement does ; but it does so in an exactly opposite way. Instead of thwarting the preformed dispositions which it excites into activity, it gives them free play. They

¹ "On Pleasure, Pain, Desire and Volition," *Mind*, O.S., vol. xiii., p. 5.

therefore tend to act themselves out without check or hindrance, and the result is pleasurable interest without that tendency to cessation of activity which arises in connection with painful interest.

In view of the above analysis, we must regard it as very doubtful whether pleasure and pain, as such, are in strictness determinants of attention at all. The tendency to withdraw attention from disagreeable objects seems explicable in those cases which admit of psychological analysis, without supposing that the painfulness, as such, is an operative factor. The very condition which occasions the pain, and at the same time stimulates attention, is also an obstacle which impedes attention, and to that extent tends to suppress it. It seems superfluous to introduce the accompanying pain as a contributory factor. On the other hand, it would be difficult to show that it has no influence. It seems, however, fair to require some special reason for assuming that it is operative. There are, of course, other conditions besides the primary mental obstruction which concur in abating mental activity; thus, pain is usually accompanied by a general lowering of the vital function, and probably by vaso-motor phases unfavourable to cerebral action. These organic changes no doubt contribute in large measure to the state of stupefaction or general mental paralysis which sometimes accompanies intense agony, whether bodily or mental. But it yet remains to be shown that these physiological changes are consequences of the feeling of pain rather than its antecedents, or collateral accompaniments arising from the same cause. However this may be, it seems clear that, at the utmost, we can only regard the influence of pleasure-pain as a supplementary condition which might conceivably be dispensed with, and which is perhaps non-existent.

We have now to examine the characteristic differences which distinguish the course of a free or agreeable attention-

process from that of an impeded or disagreeable attention-process. In ordinary language this distinction is roughly indicated, as we have previously seen (pp. 32 ff.), by the words *desire* and *aversion*. The object of disagreeable interest is said to be an object of aversion, because of the tendency which we have been discussing to direct thought away from it to something else. Now, where the strength of the interest involved is sufficient to prevent this, the aversion or "endeavour from" the object does not become wholly inoperative, but takes effect in a modified way. It does not manifest itself by a withdrawal of attention from the painful object as a whole; instead of this it becomes operative within the process itself, inasmuch as we tend as far as possible to seek relief from mental tension by dwelling on the hopeful or consolatory aspect of our trouble. In other words, instead of simply turning our backs on the obstacle which impedes mental activity by directing our thoughts into a different channel altogether, we endeavour, as far as in us lies, to evade or overcome the obstruction. The difference between obstructed or disagreeable, and free or agreeable, mental activity, is marked by phrases in common use. We speak of "revelling in a piece of good fortune," and of being "absorbed" or "plunged" or "buried in grief". Exalted pleasure produces an exuberant and rapid flow of varying imagery. We play with the subject which delights us, so as to realise it in all possible aspects and relations; we turn it this way and that, so that the light may fall on all its facets. In grief, on the contrary, the mind tends to move continually in the same groove; to retrace its steps over the same track. If we have received bad news which strongly affects us, we go over it again and again in our thoughts. We do not usually, like Richard II. or Henry VI. in Shakespeare, sport with our grief by dwelling on fantastic and far-fetched images. This may happen in a certain phase of grief in which we say that a man becomes "light-headed";

but such gaiety is said to be "hollow"; it is only transient, and while it lasts, the diversion of attention is only very partially successful, and sometimes even augments the distress. The same thing may also happen when, and so far as, sorrow is mellowed into a pleasing melancholy, so that we can hug it with a certain complacency. In so far as the pain is real and fails to find relief, there is a block in the flow of ideas, and repeated regressions, by which the movement of attention starts afresh from backward links of the ideal chain. Absolutely exact repetition is, however, impossible, because the total state of mind is subject to incessant modification from within and from without. Every time that the previous course of thought is retraced there is a tendency to variation. This affords scope for the operation of the tendency to discontinue painful activity. Whenever, in considering and reconsidering some painful topic, a view of it occurs to us tending in any way to relieve our grief or annoyance, attention fastens on the mitigating circumstance.¹ Facts or conjectures which put the case in a more welcome light, feasible lines of conduct which promise escape from a disagreeable situation, are fixed and detained in thought. They thus acquire firm associations and are retained in memory, so as to permanently modify our view of the circumstances. In this way the mitigation of grief by lapse of time may be, in a large measure, accounted for. The pain of a bereavement becomes assuaged in proportion as the sufferer ceases to think of the friend he has lost as if he were alive—in proportion as the inchoate anticipations, which arise only to be repressed, become mere memories of the past. Hence the disposition to cherish the attitude of reminiscence and the consolation which arises from it. This of course becomes more and more practicable as time advances, and

¹ I do not mean that we always tend to take the most favourable view of men and things. Some persons would be anything but relieved to find that men and things were better than they thought them.

new habits of thought and action, adapted to the altered conditions, supplant the old. It sometimes happens that even reminiscence may be painful, as when it recalls thoughtless unkindness or neglect of duty to the dead on the part of the survivor. This is the most hopeless kind of grief. For the most part, however, there is a prevailing disposition to dwell on the pleasing aspects of the irrevocable past. *De mortuis nil nisi bonum.*

The simplest illustrations of the nature of unpleasantly toned attention are afforded by difficulties and annoyances in the sphere of theoretical activity. In attempting to solve a problem which baffles us, we make a series of trials, and in each attempt we note the steps which appear to bring us nearer to our end, retain them in memory, and endeavour to embody them in succeeding attempts.

The general principle which underlies the whole of the foregoing exposition, is that painfully toned attention is always constrained attention or aversion. Ordinary language unambiguously corroborates this view. Thus we speak of a misfortune being a "blow" to a person, or of his being "crushed by calamity"; we speak of being a "prey to grief," or of being "drowned in sorrow". Whatever gives us annoyance is called a "trouble," and in cases where it is intense and sudden it is called a "shock". Sometimes a shock is so intense as for a time almost to suppress mental activity altogether, so that mere stupefaction supervenes. So far as this happens, the feeling of mental anguish is also enfeebled, though disagreeable organic sensations continue to give an unpleasant tone to the total psychosis. It is very rarely that we in like manner speak of a pleasing condition as intrusive and hostile; and when we do it will be found that a disagreeable element is involved in our experience. An "overpowering joy" is one which, by its intensity, prevents us from acting, thinking, or speaking as we should wish to do, and to that extent is a dis-

agreeable embarrassment. Reserving further discussion of the question till we come to treat expressly of the conditions of pleasant and painful feeling, we may even at this stage lay it down as a general principle that mentally conditioned pains, as distinguished from those of sensations and of the revived residua of sensations, are all pains of conflict; pains accompanying and, in large part, if not altogether, determined by obstruction of mental activity.

§ 3. VOLUNTARY, INVOLUNTARY, AND NON-VOLUNTARY ATTENTION.

We act involuntarily in so far as our actions thwart conation. All attention to painful objects is in some degree involuntary. In so far as they are painful, we should refrain from occupying ourselves with them if we were free to choose. On the other hand, in so far as our aversion is overcome by the strength of our interest, we cannot be properly said to act involuntarily. It does not follow, however, that our action is voluntary, for it may be non-voluntary or spontaneous. An attention-process is to be called non-voluntary when it is not initiated by an express determination to attend. Voluntary attention is determined by an express volition. Its primary stage is not attention to the object, but rather to the idea of attending to the object. The ordinary definitions are too vague. Thus Sully says voluntary attention "is marked off by a clear idea of end or purpose. We attend voluntarily when we consciously figure and strive to realise some object of desire."¹ But the mere presence of end or purpose is not a distinctive characteristic. It is necessary to add that the purpose must be a purpose to attend. Sully's definition would include all cases of attention, except the comparatively rare

¹ *Human Mind*, vol. i., p. 164.

group which are purely involuntary, and it is therefore much too wide. According to it, every instance of desire would be an instance of voluntary attention. This is no doubt a possible application of the word ; but it is not a useful one, and it is never strictly adhered to. The concrete examples given by writers on psychology almost all exemplify the employment of the word in the sense which I have given to it. Perhaps the most conspicuous illustration is to be found in certain psychological experiments, in which the experimenter fixes his attention on an uninteresting object, in order to observe phenomena attending the process of fixation. He determines to attend to the object for the sake of observing what takes place when he attends to it. The spontaneous and the voluntary direction of attention are not merely distinct ; they are also antagonistic. Every one desires to avoid futile worry and fret ; but no one has a mind so well regulated as to be able to divert his thoughts at will from irremediable misfortune, and unavoidable sources of anxiety. When, owing to overwork, our minds are besieged at night by a subject which has occupied us during the day, we vainly endeavour to compose ourselves to rest. We *will* to expel the intrusive thoughts ; but we cannot keep up the effort persistently ; and so soon as it is relaxed, the spontaneous movement of attention recurs, and murders sleep. Instructive examples of the same kind are supplied by fixed ideas, which hold possession of the mind in defiance of the will. The fascination of a precipice is as good an example as any. This involves a twofold conflict. In the first place, there is the struggle to expel from consciousness the idea of throwing oneself over the edge into the depth below. The terrific nature of this idea invests it with a strong interest, so that it compels attention ; but it does so in defiance of the will. Both the immediate discomfort which it causes and the danger which it threatens, form strong motives for getting rid of it by a voluntary effort. In the

second place, there is an indirect struggle arising out of the tendency of ideas to pass into action. A healthy-minded person, even though he cannot help thinking of throwing himself over, is yet able to restrain himself from doing so.

These are instances of the defeat of the practical will. But all mental training and discipline depend on its victory. This usually takes time. The resolution to devote attention to an unattractive subject can only succeed after repeated effort followed by repeated failure. The mind wanders at first, and requires to be again and again recalled to its task. We form a design to occupy ourselves with a certain topic. So soon as this design is being carried out, we cease to think of it and of the motives which prompted it. We think instead of the subject-matter which we had resolved to study. But this subject-matter is, *ex hypothesi*, uninteresting. It cannot, therefore, command attention. Accordingly our thoughts wander from the point, and have to be recalled by a renewed effort of will. This fitful alternation of attentiveness and inattentiveness may continue until fatigue and tedium cause the task to be abandoned. On the other hand, interest may grow up as the subject of study becomes better known. When this happens, the periods of concentration become gradually prolonged, until the necessity for deliberate effort ceases to exist. Thus the function of voluntary attention in such cases is to create spontaneous attention. When it fails in this, it produces only exhaustion and disgust. A person condemned to spend his whole life in constantly reiterated efforts to fix his mind on a hopelessly uninteresting topic, would go mad, commit suicide, or sink into a state of coma. Voluntary attention belongs coincidently to the province of intellect and to that of practical volition. It is the "*conduct* of the understanding," and, like external conduct, is subject to moral law. In intellectual morality the fundamental virtue is patience.

According to the above account, the volition to attend is

strictly analogous to the volition to move the arm, or perform any other bodily action. It follows from this that our voluntary command of attention must depend on our voluntary command of the motor processes of fixation. We have no power of directly creating interest in a subject merely by willing to be interested in it. We can only favour the development of interest in it by producing suitable motor adjustments, and by inhibiting the motor adjustments for the fixation of other objects. This is borne out by observed facts. A man who has to study a dry and distasteful book in order to pass an examination, can only proceed by sitting down to his desk with the book before him, by excluding, as far as possible, disturbing influences, and by resolutely following with his eyes the words as they stand printed before him. The success of the effort to attend ultimately depends on the degree in which interest in the subject-matter grows up of itself under these conditions. It may happen that the volition may so far take effect as to produce the movement of fixation, and yet fail to give rise to the corresponding attention-processes. The student may find that he has mechanically perused a page of print without grasping the meaning, because his thoughts have been wandering to other topics. We may, therefore, formulate the distinction between voluntary and spontaneous attention as follows. In spontaneous attention the movements of fixation are dependent on, and subservient to, the attention-process itself. In voluntary attention the movements of fixation have the priority, and the process of attention is initiated by them. It is highly probable that in voluntary fixation the vaso-motor mechanism plays a very important part. It would seem that we have some power of dismissing one general topic and turning to another, independently of our command of the special movements of fixation for images and percepts. Some persons appear to possess the power of going to sleep by merely determining to do so. In other words, they can effectively will

the cessation of mental activity. It is difficult to explain phenomena of this sort, unless we refer it to voluntary control of vaso-motor adjustments. At the same time it must be remembered that such an assumption is not guaranteed by any definite physiological evidence, and that the psychological facts which suggest it may admit of a different interpretation.

§ 4. EFFECTS OF ATTENTION.

Under this head we have two main questions to consider:

- (1) What are the results of the emergence of a group of sensory presentations out of anoetic into noetic consciousness?
- (2) What further change follows in such a presentational group as the consequence of the persistence and intensification of the attention-process?

As regards (1) the primary and essential difference lies, of course, in the definite objective reference acquired by the sensory material—in the transition from mere sentience to perception. But besides this fundamental difference there are also certain collateral effects. Among these it is usual to include increased intensity, distinctness, and dynamical efficacy. As regards the first point, we are confronted by an apparently insuperable difficulty. We have no means of directly comparing the intensity of a sensation, before it enters into the attention-process, with that which it afterwards possesses. All that we can say is, that in the moment of its emergence into the field of attention it appears to us to become intensified; but we have no means of estimating the degree of this change. Suppose that we have been strenuously attending to a very slight noise, while what is physically a much louder noise passes unnoticed. If now we begin to attend to the more intense stimulus, the corresponding sound certainly appears to increase in loudness. But we seem to be unable to decide whether the sound which is actually the louder was experienced as louder before it

entered into the attention-process. There are, however, indirect considerations which seem to show that anoetic experiences are often more vivid than noetic. If, while a buzz of conversation is going on around me, I disregard it and listen only to the words of one person, the difference in my total sentient experience which would be produced by the cessation of the diffused noise would be very much greater than that which would follow cessation of the speech to which I am listening.

"Along with this increase in intensity," says Sully, "and of equal if not of greater importance, there goes increase in definition of character. It is when we attend to a sensation of colour, taste, and so forth, that this acquires distinctness of quality. Attention thus immediately subserves the definition or clear demarcation of the sensation."¹ Wherein this increase of distinctness or definition consists Mr. Sully, like most other psychologists, omits to tell us. It seems to include (*a*) increase in sensory differentiation, and (*b*) the acquisition of objective reference or thought-significance. Under the first head are to be brought the direct effects of adjustments of the sense-organs and other modes of fixation. When, for instance, by a movement of the eyes, a stimulation passes from a lateral portion of the retina to the *fovea centralis*, a more differentiated sensation is the result, because the surface affected is more sensitive to differences. Doubtless, also, augmented sensitiveness to difference attends the mere entrance of the sensations into the sphere of attentive consciousness, even apart from sensory adjustment. Under (*b*) we must distinguish two kinds of objective reference. The sensory presentations, in becoming part of the attention-process, usually acquire a reference to a perceived object which is distinct from their own intrinsic qualities as sensory experiences. This is the case in so far as they constitute the specifying content through

¹ *Human Mind*, vol. i., p. 166.

which a material object is perceived. On the other hand, what is chiefly attended to may be the intrinsic quality of the sensations themselves. This is the case with all psychological analysis of sensation, and it is apt to be the case whenever a psychologist sets himself to observe the effect produced by attention on sensation. This is shown by a way of speaking which is common to most psychologists. They talk of "attending to sensations," and in so doing they appear to have in view only the instances of attention which would be naturally covered by this phrase—instances in which the main interest lies in the fuller analysis of a sensory quality, as such. This is obviously Mr. Sully's meaning when he says that "when we attend to a sensation of colour, taste, and so forth, it acquires distinctness of quality". But there is a large class of instances in which, to use the language of Helmholtz, "the influence of the sensation in question makes itself felt only in the conceptions we form of external things and processes, and assists in determining them. This can take place without our needing, or indeed being able, to ascertain to what particular part of our sensations we owe this or that circumstance in our perceptions."¹ Now, in both classes of instances the sensations enter into an attention-process; they form an integral part of the perception of an object. The difference is merely in the nature of the object. In the one case this object is the sensory quality itself; in the other it is something else. The error against which I would protest is the assumption that just because a sensation passes from anoetic to noetic consciousness, its own intrinsic quality must become an object of attention.

It follows that, instead of speaking of distinctness or definition in the character of the sensation, we should speak of distinctness or definition in the perceived object, which may or

¹ *Sensations of Tone*, 2nd English edition, p. 62, as quoted by James, *Psychology*, vol. i., p. 516.

may not be itself a sensation. It seems a wrong use of words to say that distinctness in this sense is *increased* by the entrance of a group of sensations into the attention-process. We should rather say that only in this way does it come into being at all. Its increase will depend upon persistence and intensification of attention ; its very existence presupposes the existence of attention.

In the third place, the emergence of presentations into the sphere of attentive consciousness carries with it an increase in their dynamical efficacy, as factors determining the course of mental events. This circumstance alone makes possible a prolonged train of connected ideas, each of which calls up its successor without external interruptions. The more intense the attention-process is, the more completely is the procession of mental images self-determined in such wise that each prior image suggests that which is subsequent to it. At the same time it is clear that the presentations which enter into attentive consciousness are by no means the sole determinants of mental process. The most interesting train of thought is liable to be interrupted by an intense sensation, or by a sensation which, though it is not intense, is connected with highly excitable mental systems. It is said that Hegel wrote the last pages of his *Phaenomenologie* within hearing of the battle of Leipzig. Perhaps this does not show that his hearing was dull and his patriotic tendencies weak, but only that his philosophic tendencies were enormously strong. But the circumstance is quoted as something exceptional and wonderful. When a train of thought is interrupted by an irrelevant sensation, the sensation must in the first instance operate purely as an anoetic experience. The attention-process to which it gives rise is a consequence. In some instances the sensation itself never enters into attentive consciousness at all. Thus, in walking along a street a name may suddenly come into my mind, and I may at first be totally unable to

account for its intrusion, but on looking round I find the name printed in large letters above a shop-window or on an advertisement board. Now, the name as it first occurred to me was not visualised, but internally heard and articulated. It follows that the visual experience must have influenced the flow of mental images while itself remaining in the field of inattention.¹

Under (2) we shall first consider the common statement that the fixing of attention prolongs the presence of sensations and images in consciousness. "Attention," says Sully, "secures a certain persistence in the sensation or idea. To attend means to keep before the mind for an appreciable time."² Here there seems to be some confusion. It is perfectly true that to attend is to keep before the mind so long as attention lasts. But the question arises, what is it that is thus kept before the mind? It seems to be assumed that this must necessarily be a "sensation or idea". Now, this assumption is justified when the object persistently attended to is the intrinsic quality of a presentation. But when the object is not a mode of our own experience, as such, but a physical thing or process, or the general topic of a train of thought, the case is not so clear. The object may remain the same while the mental imagery progressively varies. The process of attending has for its end a fuller and more determinate cognition of its object. But this end would in general not be attained merely by the continuance in attentional consciousness of the same sensations

¹ The following additional example was communicated to me by Professor Mackenzie as this work was going through the press: "An even more striking experience (which very often happens to me) occurs in glancing over a large page (especially the page of a newspaper). One often becomes aware of some word in such a case which one finds oneself repeating internally. On investigation it sometimes appears that there is no such word on the page, but that part of it occurs at one part of the page and another part at another. Here one has not only received an impression, but made a combination without having attended to it."

² *Human Mind*, vol. i., p. 167.

or images. On the contrary, this would mean the arrest of the process. The fuller determination of the object consists in the fuller development of our idea of it, and this involves the addition of new elements to this idea. To attend persistently to a total object is to attend successively to its parts and aspects, so as ultimately to produce a more distinct apprehension of the whole. Suppose that the total object is a scene spread out before my eyes; continued attention to this scene involves special attention to its parts, one after the other. In other words, it involves progressive change in the sensations which successively acquire meaning for thought. Each new thought-distinction depends on new sensory differences. These sensory differences, as such, are detained in the field of attentive consciousness only so long as they are useful. Before and after the special phase of the process in which they become significant on their own account, they have no separate objective reference. They are sensory differences which mediate no thought-distinction. They may enter as parts into the composition of perceptual consciousness, but they are not themselves perceptions. We do not here mean to deny that on the whole attention tends to detain presentations in consciousness. What we are protesting against is the confusion between détention of the same presentation in consciousness and the persistent direction of thought to the same object. They are not identical, nor are they coincident. Apart from this confusion, the statement that attention tends to prolong the presence in consciousness of sensations and mental imagery, is in large measure true. It is conspicuously so when the object attended to is the nature of the presentation itself, as it is in the introspective analysis of sensations, and also in those instances of voluntary attention in which we mentally repeat a name or date with the view of fixing it in the memory. Besides these special cases, it is generally true that sensations and imagery which would otherwise be evanes-

cent are prolonged because they excite interest. In walking along a road, I am receiving a series of rapidly changing sense-impressions; any of them which happens to be interesting to me at the moment will be detained in consciousness longer than the others, or at any rate the corresponding ideal image will be detained. The same may happen when the external stimulus is by its very nature transient, as in the case of a passing sound or light. It is also obvious that the persistence of mental imagery in general is almost entirely dependent on its significance for thought or on its connection with what is significant for thought.

Another point on which Mr. Sully lays emphasis is that "attention and detention through attention lead on to retention". Now, there is no room for doubt that attention leads on to retention, and subsequent reproduction; but it is not so clear that the most important mediating link between attention and retention is detention, though of course this condition counts for much. The essential point is that a presentation which forms part of attentive consciousness, *ipso facto*, enters into the composition of a complex and systematic mental process, whereas anoetic experiences remain in relative detachment from the main stream of conscious life. The mere prolongation of its presence in consciousness is of secondary importance.

How far is it true that increased and prolonged concentration of attention augments the intensity of sensations and images? As regards sensations, the ruling of Stumpf seems most acceptable. "A sensory presentation may be intensified through attention, but only up to the point where it reaches that degree of intensity which would have been produced by the stimulus, if it had not been counteracted by certain collateral influences in the nervous system."¹ It is clear that unless this effect of attention were restricted within very

¹ *Tonpsychologie*, Bd. i., p. 72.

narrow limits, it would, by altering the phenomena to be observed, prove a very serious source of error in observation. Mr. Shand has referred to a group of instances which strikingly illustrates this point.¹ The psychologist often finds it necessary to observe faint sensations and images, as such, being interested in them merely as mental experiences, and disregarding their significance as representations of physical objects. Any appreciable change in their intensity is therefore to him a mere falsification. Whenever the intensity itself is the object examined, it would obviously destroy the possibility of observation, if this intensity became greater the more it was scrutinised. Under such conditions we should, as Stumpf says, be unable to observe a low tone, but only one of maximum loudness, or, at any rate, one which constantly increases as it is observed; whereas, in point of fact, we can follow a *diminuendo* with increasing attention. Such increase of intensity as is produced by attentive concentration occurs mainly in the case of initially faint sensations, and even with these it is very slight. Something perhaps depends on the point of view of the observer. If intensification will assist instead of hindering him, he will endeavour by appropriate movements of fixation, and by the recall of appropriate images, to make the sensory presentation more vivid. If, on the other hand, intensification is a hindrance to him instead of a help, he will endeavour to prevent it. As regards mental images, there is more difficulty in coming to a decision, because they are so much more evanescent than impressional experiences. But when the presence of the image in consciousness is prolonged, it seems very difficult to increase the concentration of attention without increasing the vividness of the imagery. This is especially so when we deliberately try to mentally picture an object. Hence the extreme difficulty of introspective observation of mental imagery.

¹ *Mind*, N.S., No. 12.

The most general and fundamental function of attention is to make its object more distinct—to substitute more determinate, for less determinate, cognition. Where it fails in this, the failure is due to counteracting obstacles. In every case its tendency is towards increased distinctness. Even when we are learning by rote, the process of fixing in the memory is also a process by which the interconnection of the parts of a whole, *e.g.*, the order of words in a poem, becomes more distinctly apprehended. When we have thoroughly committed a passage to memory, we have a definite awareness of the position of particular words and sentences, in relation to their whole context, which contrasts strongly with the previous vacillation and indeterminateness of our mental attitude, when the passage was only imperfectly and hesitatingly remembered. The tendency of attention is always towards distinctness; but this statement requires careful explanation and restriction. It is highly important for us to explain precisely wherein the distinctness consists. We must draw a sharp line of demarcation between distinctness of objects, and distinctness of sensations and images. Confusion is apt to arise on this point, because the two modes of distinctness are for the most part correlative. This is so whenever the object attended to is the nature of a physical thing, as it exists independently of its transient appearance to us. Thus, if, standing on the shore, I see a ship in the distance, but too dimly to be able to make out whether it is a brig or schooner, I may use a glass in order to satisfy my curiosity. In this case, the visual sensations become more distinctly differentiated, and at the same time, and by the same process, the object becomes more determinately known. But this is not always so. An artist who is painting the scene is interested not in knowing what kind of vessel it is, but in knowing what kind of appearance it presents. Its dimness and haziness are part of what he has to reproduce on his canvas. The sensible

appearance, as such, is the object on which he concentrates attention, and to alter this appearance would be to falsify his observation. A great part of the superiority of his knowledge to that of a non-artistic person lies in his more distinct apprehension of the indistinctness of what he observes. It must indeed be admitted that a sensible appearance on which attention is persistently concentrated must in some degree suffer modification. The appearance which is distinctly known, cannot remain quite the same as the appearance which is vaguely known, or merely experienced without being noticed. But the change need not be such as to falsify observation ; so long as it is confined to the distinguishing of sensory differences which have already been felt before they are distinguished, and to the denial of sensory differences which are not so felt, although the lay mind might assume them to be present, no error is involved. This is true even though we fully admit that a distinguished difference is never the same for consciousness as an undistinguished difference ; for the vital condition of accurate knowledge is not that the sensory experience should remain wholly unchanged, but only that it should continue to adequately represent the appearance cognised. The analysis of a chemical compound is none the less accurate because we produce change in it by the various reactions through which we test it.

CHAPTER IV.

RETENTIVENESS, HABIT, ASSOCIATION, CONFLICT, AND COALESCENCE.

§ 1. INTRODUCTORY.

THE foregoing chapters on Activity and on Attention have been mainly concerned with conscious process, as such ; but it has throughout been assumed that this process is conditioned by preformed dispositions, which are either hereditary or are the persistent product of psycho-physical process in the past. What we have now to consider is the mode in which these mental dispositions arise, and the mode in which they operate when once they are formed as factors determining future change.

§ 2. RETENTIVENESS IN GENERAL AS A HISTORICAL CATEGORY.

Retentiveness is the determination of future change by the products of past process. As thus defined, it has a very wide range of application, extending to matter as well as to mind, and to inorganic as well as organic bodies. It is, however, a conception which belongs exclusively to the concrete or historical sciences, as distinguished from the abstract or non-historical. Abstract science simply formulates general laws. It states that on fulfilment of conditions of a certain abstract kind, certain consequences follow, irrespective of time and place, and, in general, of the concrete setting in which the

abstract conditions find embodiment. Any chemical, physical, mechanical, or mathematical generalisation may serve as an illustration. Thus, when we state that oxygen and hydrogen, under certain definable conditions, unite to form water, we are concerned only with the general relation of antecedent and consequent, not with the special circumstances of any particular case ; wherever and whenever the conditions are similar, the result is similar. In historical knowledge, on the contrary, we have to do with a series of changes taking place in a concrete object, which is regarded as maintaining its unity and identity from a certain point of view, in spite of the modifications which it undergoes. This is the standpoint of the geologist in tracing the history of the earth, or the biologist in tracing the transformation of species. Now, all such investigations depend for their interest and value on retentiveness, on the determination of each new phase in a series of changes, by the persistent results of previous change. The history of any material system is interesting in proportion to (1) the complexity and variety of the modifications which it undergoes without losing its unity and identity ; (2) the degree in which these modifications are determined by the specific nature of the system itself rather than by environing conditions. Only in proportion as these conditions are fulfilled does the conception of retentiveness acquire significance. It is applicable, as we have said, to every concrete thing ; every concrete thing can be regarded as having a history. The rock which is being worn away by the sea goes through a series of changes, each of which paves the way for the next. The new boot which gradually adapts itself to the foot comes to fit easily by a series of superposed modifications ; each previous pull, strain, and pressure leaves behind it a residual effect which conditions the effect produced by succeeding pulls, strains, and pressures. So the violin acquires its tone as the fibres of its wood become adapted, by the persistent effect of repeated

impressions, to take up certain vibrations. But in such cases as these the range of simultaneous and successive variation is very limited, and its nature is predominantly determined by external conditions. It is different when we turn to the history of the earth as geology reveals it. Here the changes are highly varied and complex, and their specific character is predominantly determined by internal conditions. The same holds good in an even more conspicuous way of the development of living organisms. Here we find immensely complicated series of changes following each other in regular gradations, according to a predetermined plan. The predetermination depends ultimately on a preformation, which exists at the beginning of the process. Certain external conditions are required for the realisation of the plan, but its specific nature is essentially traceable to the original preformation. The actual evolution of the successive stages of change depends throughout on retentiveness. As the initial preformation determines the next step in the process, so this next step brings with it a modification of the preformation itself, which in its turn forms the foundation of the next succeeding development. Thus a comparatively formless germ becomes gradually differentiated by a process of segmentation. Parts that are afterwards to become fully articulated are at first thrown off as rudimentary and comparatively shapeless masses; and this process goes on until by a regular series of transformations the adult organism is evolved from the embryo.

§ 3. PSYCHO-PHYSICAL RETENTIVENESS.

The evolution of the brain is part of the evolution of organic life in general. In the case of man, however, it reaches its goal much later than the other organs of the body. The organs, which immediately subserve the vital functions attain to a final

state of comparative stability, so that they discharge their part in the conservation of life in a relatively uniform and unchanging way, corresponding to the uniform and unchanging conditions of existence to which they are adapted. With the brain it is otherwise. The special function of this organ in the economy of life is to adapt the body to comparatively irregular variations in the environment, and to adapt it not merely at the moment when these conditions come into actual operation, but also to make provision in advance for future emergencies. Thus the brain is throughout the life of the individual far removed from that comparatively stationary condition which characterises the other organs after the development of the embryo into the fully differentiated organism. This development is shared by the brain; but it has a subsequent history of its own, of the greatest interest and importance, a history which forms the physiological counterpart of psychical development. Between this evolution and that of the embryo there is a close analogy. The initial preformation is supplied by the hereditary structure of the brain, and the subsequent development is one of differentiation and integration. Retentiveness also plays a quite analogous part. The product of previous change is always a modified preformation, which in its turn predetermines subsequent change according to a definite plan. The importance of the preformation at any given stage of the process is quite analogous to its importance in the evolution of the embryo. The specific nature of possible changes is throughout predominantly determined by the internal arrangement of the material system itself, as given at the outset by heredity and as modified by the course of subsequent development. Further, the importance of internal conditions becomes greater as the process of evolution advances—as definite habits of thought and action come into being. But even at the outset the controlling influence of the preformation is conspicuous. The external conditions which

determine brain-process consist in a certain limited group of physical influences, the rest being without appreciable effect. Those physical influences which are operative produce effects widely different in kind to those which they commonly produce in other bodies, and of an intensity and complexity altogether out of proportion to their own intensity and complexity. The movement of a feather across the skin may throw the whole organism into violent disturbance. The fall of a pin on the floor may have a similar result. The reason is that the cells of the brain are store-houses of pent-up energy, and that the effect of the stimulus mainly consists in breaking down a pre-existing tension, and so transforming potential energy into kinetic. The consequent brain changes depend in very large measure on pre-existing internal arrangements.

We have now to examine the special nature of psycho-physical retentiveness, and the precise manner in which it determines psycho-physical development. For this purpose we must first analyse the conception of habit.

§ 4. HABIT.

There are two points of view from which we may approach this subject. We may consider habit either as fully established or as in process of formation. Our chief concern is with the principle of growth through which habitual modes of thought and action come into being. But it will be most convenient to begin by noting the chief features of permanently fixed habit. These are four in number: Uniformity, Facility, Propensity, and Independence of Attention. Let us disregard for the moment habits of thought and volition, and consider only that class of muscular actions which are called secondarily automatic. Such are dressing and undressing and the various forms of acquired manual dexterity. (1) It is obvious that these acts repeat themselves under similar con-

ditions with a regularity which may be called machine-like, as compared with the fluctuating and variable acts of the same complexity for which custom has not prepared us. To act from habit is to act mechanically and *quasi* instinctively. (2) A habitual series of movements is also more facile. To see this we have only to compare the slow and bungling efforts of the learner who is continually taking false steps and having to retrace them, with the sure and rapid procedure of the practised adept. (3) A rooted habit is also, as such, a conation. We are prone to do what we are used to do. This holds good universally, where there is no more powerful counteracting motive. Every interruption to our routine way of doing things is felt as a disturbance and annoyance. "I conceive it to be a part of our constitution," says Reid, "that what we have been accustomed to do, we acquire, not only a facility, but a proneness to do on like occasions ; so that it requires a particular will and effort to forbear it, but to do it requires very often no will at all. We are carried by habit as by a stream in swimming, if we make no resistance."¹ Dr. Carpenter tells that he was "assured by a large outfitter that all his workwomen in a particular department refused to work for a fortnight, merely because they were required to make a slight alteration (not productive of the least additional trouble to themselves) in the pattern of a particular garment".² In general, the proneness to action which has become habitual, manifests itself in two ways: (*a*) the more firmly fixed the habit the slighter the cue required to prompt the customary reaction, and in the same proportion the reaction is less liable to disturbance from accompanying circumstances; (*b*) when the customary course of action is interrupted or repressed by obstacles, or by the absence of some of its necessary external conditions, the propensity becomes a conscious desire, accompanied by aversion to the disturbing conditions. (4) It is a

¹ Hamilton's edition, vol. ii., p. 550.

² *Mental Physiology*, p. 349.

commonplace that habitual action tends to become automatic, *i.e.*, to take place independently of attention. This follows from the general nature of the attention-process, which essentially involves a readjustment of the mental preformation to relatively new conditions. There are, however, certain difficulties and misapprehensions connected with this subject which need to be cleared up. The clearest examples of habitual action taking place apart from attention are those in which attention is otherwise occupied, as when a person knits, or plays on a musical instrument, and at the same time engages in conversation, or threads his way through a crowded street while absorbed in thought. It should be noted that in such instances the diversion of attention is probably never absolutely complete. The musician, for instance, is more or less aware that he is playing a piece of music, and the absent-minded walker is not utterly oblivious of the fact that he is in a crowded street and in motion. What can be asserted confidently is that in such cases there is no persistent and discriminating attention to the details of the action. This distinction helps us to understand another group of habitual actions which do not appear to fall into the state of secondary automatism, however much they may be practised. Fencing supplies a good instance in point. The most expert fencer cannot afford to allow himself to be absorbed in an irrelevant train of thought while he is engaged in a duel. On the contrary, the keenest watchfulness is required. The reason is that only certain component parts of the action have become thoroughly habitual; these do not of themselves require to be attended to. The practised fencer has not to think about the proper modes of thrusting and parrying; what requires attention is the tactics of his opponent. As soon as he discerns by sight or feeling the direction in which his antagonist's rapier is moving, the proper reply is made automatically. Thus attention is demanded for the proper combination of a series of movements which are

severally automatic, a combination which has to be adjusted to constantly fluctuating conditions. The union of attentive adaptation to relatively novel circumstances with automatic adaptation to circumstances more uniformly repeated is found in all ordinary voluntary action. Thus the decision to blow out a candle may require attention, but the process of walking towards it and blowing is automatic. It has been urged that secondarily automatic actions are never necessarily automatic, because it is always possible for us to attend to them if we choose, and that, whether we attend to them or not, they retain the essential features of habit.¹ Now, it is certainly true that the musician who plays automatically may also, if he please, play with attention. But the real question is, how far his action as a whole retains the same character. That it does so can scarcely be maintained. There are two cases to be considered. In the one, the performer does not attempt to direct his discriminating attention to the mechanical details of execution, so far as they have been provided for by preformed habit. If and so far as this is the case, the effect of attention will be seen in new features which are absent in the automatic performance, such as expression or "soul," and increased accuracy in the more difficult parts. This cannot be called a mere repetition with attention of what could take place equally well through habit. In the second case the performer deliberately attempts to attend separately to details which do not require attention. We may assert confidently that in proportion as this is so, habit is disturbed ; there is loss of facility, rapidity, and uniformity ; the attempt is essentially artificial, and it simply serves to disturb pre-established arrangements.

The general result of the preceding analysis is that established habit is independent of and exclusive of attention. But it must be remembered that we have so far considered only series of muscular movements, and that we have reserved for

¹ Léon Dumont in the *Revue Philosophique*, vol. i.

separate treatment habits of thought and volition. On the first blush it would seem that by their very nature thought and volition can never become in the proper sense habitual; they are essentially attentive adaptations to relatively novel conditions. But closer scrutiny shows that this apparent difficulty arises from a misunderstanding. When we speak of a "habit of thought" or a "habit of will," we do not mean that the special acts of volition or the special trains of thought which are determined by preformed custom, themselves possess the characteristics of habit. We have already seen that automatic processes may enter as component parts into a total process which as a whole is very far from being automatic. The inverse of this is seen in habits of thinking and willing. Here a comprehensive habitual tendency realises itself on special occasions by means of special processes which are not habitual. Let us take as an instance of a habit of thought the custom which certain persons have acquired of shaping their reasonings according to patterns with which they have become familiar in the study of formal logic. The typical schoolman naturally approached every theoretical problem in this manner. It was his habit to reason in formal syllogisms. He did so automatically, without conscious choice. But in the case of each new problem the application of this habitual method required special attention in proportion to its novelty. Another example is afforded by the deeply rooted habit of certain modern biologists, who explain the origin of the characters of living organisms exclusively by natural selection. This mental tendency has become automatic with them; but on the special occasions in which it comes into play a special exercise of ingenuity is required in bringing the general principle to bear on the particular case. When habits of this kind are regarded as without sufficient justification, they are called prejudices, and their existence is an obstacle to the reception of new truths independent of any difficulties con-

nected with the proof of such truths by argument and evidence. What has been said of habits of thought applies, *mutatis mutandis*, to habits of volition. When we are so accustomed to submitting to a certain authority that we do so automatically, we none the less have to exercise our attention in following its commands, if they are obscure or self-contradictory.

§ 5. THE FORMATION OF HABIT.

One necessary and omnipresent condition of the formation of habit is the tendency of any mental process with its connected movements to repeat itself, simply because it has occurred before—a tendency which grows stronger the more frequently the process recurs. When we say that the tendency grows stronger we mean (1) that the process is capable of being set in action by a slighter cue. If on the first occasion it has occurred by way of reaction to a complex stimulus *a b c d*, it may, after frequent repetition, find sufficient prompting in the presence of *a b c* or *a b*, or even of *a* alone. This characteristic of habit has been called the principle of the “Diminution of Causality”.¹ (2) That it becomes less liable to disturbance from accompanying circumstances. (3) That it becomes stronger as a propensity—*i.e.*, if its course is interrupted or arrested greater impatience is felt. This principle of repetition, as we may call it, seems in certain exceptional cases to be of itself sufficient to account for the growth of habit. Its importance is greater in proportion as the part played by attention and volition in the original process is small. Thus, in the case of idiots, we sometimes find it operative in almost complete detachment from other modifying conditions. Dr. Carpenter quotes from Miss Martineau’s

¹ L. Dumont in the *Revue Philosophique*, vol. i.

Letters on the Laws of Man's Nature and Development an account "of a youth under her own observation who, in consequence of early injury to the brain, never acquired the power of speech or of understanding the language of others, or of in any way recognising other minds; but was at the same time strongly affected by sensory impressions. 'He could endure nothing out of its position in space or its order in time. *If any new thing was done to him at any minute of the day, the same thing must be done at the same minute every day thenceforward.*' Thus, although he disliked personal interference, his hair and nails having been one day cut at ten minutes past eleven, the next day and every day after, at ten minutes past eleven, he, 'as if by a fate,' brought comb, scissors, and towel; and it was necessary to cut a snip of hair before he would release himself. Yet he had no knowledge whatever of the measurement of time by clocks and watches, and was no less minutely punctual in his observances when placed beyond the reach of these aids. So in regard to form, number, and quantity his actions were equally methodical. He occupied himself much in making paper-cuttings, which were remarkable for their symmetry. If, when he was out of the room, a brick were taken from the heap with which he amused himself, he would pass his hand over them, spread them a little, and then lament and wander about till the missing one was restored. If seven comfits had once been put into his hand, he would not rest with six; and if nine were given he would not touch any until he had returned two."¹ In normal life, uniform repetition is a characteristic of a fully-formed habit, which has to be accounted for by the process through which the habit grows. It cannot therefore be regarded as present from the outset. The relatively stable and unchanging form of reaction which finally emerges is the result of a series of repetitions each of which brings with it a certain alteration of

¹ *Mental Physiology*, p. 349.

the recurrent process. The degree of modification at length begins to diminish with each repetition, until the stage of uniform recurrence is reached. This is evidently a true account of the acquisition of facility and precision in complicated series of bodily movements ; the effect of practice is shown in the well-marked difference between the performance of the beginner and that of the expert. But, apart from the special kind of variation which characterises this group of cases, it is of vital importance to note that the transition from attentive to automatic process in itself constitutes a profound change, which cannot be referred merely to the principle of repetition. Obviously some other co-operative factor is required. This concurrent factor is to be found in the essential nature of conation, and more especially in what I have called the *teleological* aspect of attention. All conative processes cease when and so far as their end is attained. Their end in the teleological sense is, as I have said, also their end as occurrences in time.¹

The mode in which this principle comes into play will be best shown by an analysis of special cases. Let us take as our first instance the development of a habit of always performing an act upon a certain occasion—*e.g.*, the custom of answering letters by return of post. At the outset this procedure is prompted by some definite motive, such as the desire to be business-like, or to avoid the trouble arising from procrastination, or to give satisfaction to an employer. This motive leads to a conscious decision to perform the act in spite of the seduction of temptations which would otherwise lead to its neglect. But after many repetitions the part played by conscious choice becomes less and less prominent. The original motive falls more and more into the background ; finally, the answering letters by return of post becomes a mere matter of course, which takes

¹ *Vide* bk. ii., cap. ii., on the "Process of Attention," p. 191.

place without any deliberation or consideration of pros and cons. The reason is that deliberation and consideration of pros and cons have become unnecessary. By the principle of repetition the answering of letters follows on the mere circumstance of receiving them, and ordinarily requires no other prompting. The original conation, the desire to be business-like, or whatever else it may be, has attained its end, and therefore disappears. It has attained its end by means of the principle of repetition, which establishes a firm connection between the performance of the act and its external occasion. In so far as this is the case, conscious choice based on the original motive becomes a superfluity, and, as such, a hindrance rather than a help. But if the principle of repetition were the sole condition at work, the conscious deliberation would be repeated the more inevitably, the more fully the habit was formed.

Further illustration is to be found in the formation of habits of volition. This group of cases has been well described by Bishop Butler. "Active habits may be gradually forming and strengthening, by a course of acting upon such and such motives and excitements, whilst these motives and excitements themselves are, by proportionable degrees, growing less sensible, *i.e.*, are continually less and less sensibly felt, even as the active habits strengthen. . . . Perception of distress in others is a natural excitement, passively to pity, and actively to relieve it; but let a man set himself to attend to, inquire out, and relieve distressed persons, and he cannot but grow less and less sensibly affected with the various miseries of life with which he must become acquainted; when yet, at the same time, benevolence, considered not as a passion, but as a practical principle of action, will strengthen."¹ It is perhaps not necessary to point out that Butler here uses the words "active" and "passive" in a sense quite different from ours. Activity is

¹ *Analogy*, ed. J. Angus, pp. 91, 92.

for him the immediate initiation of bodily movement, and all other modes of consciousness are passive affections. Hence he speaks of passive impressions fading as active habits strengthen, whereas, from our point of view, it is the passivity which grows, and the activity which disappears. This verbal difference connects itself with a real one. Butler makes a distinction between active and passive habits, and he lays it down as a general principle that "practical habits are formed and strengthened by repeated acts, and that passive impressions grow weaker by being repeated upon us".¹ We can, of course, admit no such distinction. If familiarity with danger lessen fear, it is because the mental activity excited by the danger diminishes. Our minds have become pre-adjusted to it by past experience; so that its recurrence occasions a smaller disturbance of psycho-physical equilibrium, and therefore a fainter mental and physiological reaction.² The "weakening of passive impressions" by repetition arises from weakening of attention, *i.e.*, from weakening of activity.

We may now examine the acquisition of automatic facility in complex series of movements. What is it that takes place in learning to walk, or to dance upon a tight rope? It is evident that the principle of repetition by itself altogether fails to account for the formation of such habits. If it alone were in operation no child could ever learn to walk. He would continue to cling to chairs, and to fall at almost every step to the end of his life. All progress in such exercises presupposes the principle of finality. Conation, in proportion as it is successful, tends to disappear; only its results are permanently retained and reproduced. At the outset, performance falls far short of intention; only a certain series of contractions of certain muscles, in proper proportions and in a proper order, is capable of realising the end aimed at, with the maximum of

¹ *Analogy*, ed. J. Angus, p. 91.

² *Vide* bk. ii., cap. ii., on the "Process of Attention," pp. 200-201.

rapidity and certainty, and the minimum of obstruction and failure, and corresponding effort. At the outset of the process of acquisition, muscles are contracted which are superfluous, and which therefore operate as disturbing conditions. Others are not contracted at the right moment, and in the right measure, so that action is deranged. Now the effort to attain the end is, *eo ipso*, an effort to avoid failure and obstruction ; hence there will be a constant tendency to alter muscular adjustments in so far as they are unsuccessful. Hence arise gradual approximations to success, and it is these which the principle of repetition permanently retains, while all that belongs to the process of trial, as such, disappears. In this way a fixed and uniform series of movements is organised, which can go on of itself without conscious effort,—without trial and failure.

The counterpart in physiological terms of the psychological principle of finality, is the tendency of neural systems to a state of virtual stability.¹ Conation is the psychological counterpart of the process by which a neural system regains equilibrium after disturbance. In the terminology of Avenarius, the initial disturbance is called the *vital difference*, and the return to equilibrium is called the *vital series*. In the case of fully established habit, the vital difference evokes a fixed form of vital series, which is repeated in a comparatively uniform way whenever the disturbing conditions recur. Thus, the state of equilibrium which results from the vital series is approximately the same as the state which precedes the occurrence of the vital difference. During the formation of habit this is otherwise. On each occasion, the resulting state of equilibrium is a different state from that which existed prior to the disturbance. Hence each successive vital difference and vital series will be appreciably altered in nature, because in each case the neural preformation which suffers disturbance

¹ *Vide* bk. ii., cap. ii., on the "Process of Attention," p. 99.

has been modified. It is but a consequence of the general tendency to a stationary condition that each successive modification is of such a nature as to diminish the intensity and complexity of succeeding vital differences and vital series. The neural system becomes more and more pre-conformed to the conditions which tend to disturb it, and the amount of disturbance which they produce in it becomes therefore progressively less. The more alteration neural arrangements receive from the same conditions, the less capable of alteration they become. Thus the effect of practice is that the vital series become more and more restricted to just those constituent processes which are finally indispensable for adaptation to disturbing conditions. All other changes are excluded in the course of the development of habit. The final result is the uniform recurrence of the simplest possible form of vital series.

§ 6. CONTIGUOUS ADHESION.

Inasmuch as the mental dispositions which are formed in accordance with the principle of repetition are the residua of complex mental processes, this principle is also a principle of combination. The process is not retained and reproduced unless the grouping of its constituent parts is retained and reproduced. We have now to introduce a new conception which further extends and specialises the combining efficacy of retentiveness. I refer to what is commonly called the law of Association by Contiguity. This law, as applied by the associationists, plays the part of a primary principle of explanation which, together with the law of similarity, supplies the key to the whole development of mental life from its most primitive to its most advanced stages; indeed, they scarcely distinguish it from the primordial facts of retentiveness. At the same time they usually formulate it, and for the

most part conceive it in such a way that it is difficult to see how it can begin to come into operation before a comparatively late and complex phase of development has been reached. As stated by them, it presupposes the existence of groups or series of *ideas* as distinguished from impressions and percepts. Now, as we shall attempt to show in chap. v., the existence of ideas is subsequent to that of percepts, and even implies some complexity of perceptual cognition. I here put forward a provisional statement of the law of contiguity which is intended to obviate this objection, and so to avoid, as far as possible, prejudging the questions at issue between the associationists and their opponents. My statement contains two heads, both of which will, in the next section, be submitted to criticism in so far as regards the scope of their application.

(1) *When part of a complex disposition is excited, the whole tends to be excited in some manner and degree.* (2) *The whole presentational content of consciousness at any one moment, and the corresponding conations, so far as they are not realised, leave behind them, not a plurality of independent dispositions, but a single complex disposition. The union of the constituents of such a complex is more or less perfect according to circumstances.* The more prominent and intense the elements of the psychosis are, the more firmly they cohere; their union is also more intimate in proportion to the frequency of their conjunction in repeated experiences. This last condition is especially to be noted, because it constitutes a characteristic feature by which associative combination may be distinguished from all other modes of mental synthesis. If and so far as the conjoint recurrence of two contents of consciousness is conditioned by the frequency of their conjunction in the past, their union is to be ascribed to contiguous association.

Let us now compare with the above formula Dr. Bain's enunciation of the principle of contiguity or contiguous adhesion. "Actions, sensations, and states of feeling, occur-

ring together or in close succession, tend to grow together or cohere in such a way that, when any one of them is afterwards presented to the mind, the others are apt to be brought up in idea."¹ In some points this calls for criticism, even from the associationist standing-ground. For the word "actions" I should substitute "conative tendencies". Dr. Bain appears to have mainly in view actual muscular movements when he uses the word "action" in this connection; but the grouping of muscular movements, in so far as it is psychically conditioned, is a secondary consequence of the grouping of presentations, and of the various specific directions of psychical, or at the least of neural, activity. "Sensations," also, appears to be a term of too limited application. Perceptions, ideas, and conceptions are subject to the principle of contiguous adhesion. It is not legitimate to bring all these under the head of "sensations". Dr. Bain evidently had in mind his very dubious theory that all modes of presentational consciousness which are not immediately due to external impressions differ from impressional presentations only in point of vividness. It is not quite clear what Dr. Bain means by "states of feeling," but if mere pleasure-pain is intended we must deny that such states are directly subjected to the law of contiguity. Certainly, pleasures as such and pains as such are not immediately associated with each other, and it does not appear that they are, properly speaking, associated with presentations or active tendencies. The connection of pleasure-pain with other modes of consciousness is of a more intrinsic and intimate nature than what Dr. Bain calls "adhesion" or "agglutination". It does not arise from repetition, nor is it strengthened by repetition. All that we can say is that a certain mode of being conscious has a certain hedonic tone, which belongs to it just because *it is* this or that mode of consciousness, and not because of any previous process of mental grouping. In order

¹ *The Senses and the Intellect*, 4th edition, p. 341.

to see that the law of contiguity does not apply to pleasure-pain as it applies to presentations, we have only to recall some very common experiences. The sight of food awakens pleasure before eating ; but after we have eaten to satiety it gives rise only to indifference or disgust. This is inexplicable by the law of contiguity. If the pleasure of eating became associated with the sight of the food by repetition, it ought easily to be revived whenever we concentrate attention on a well-furnished dinner-table. The pleasure depends on the satisfaction of an appetite, and when the appetite has disappeared it disappears also, and cannot be revived by mere association.

The application of the principle of contiguity to the conative aspect of consciousness can only be accepted under certain reserves and restrictions. Its operation is modified by the principle of finality. In the above instance it is as impossible to revive by mere association the appetite for food as it is the pleasure of eating. Not only has the conation itself ceased to exist in attaining its end, but the corresponding psychophysical disposition has also ceased to exist, and cannot therefore be re-excited. If a sufficient interval of time elapse, any circumstance associated with eating will suffice to awaken the desire for food ; but this is only possible because the other conditions on which the appetite depends have come into play in the meanwhile. The organism again requires food, and the felt craving which corresponds to this organic need, if, because of mental pre-occupation, it does not of itself emerge into clear consciousness, is readily evoked by association.

Another important difference between Professor Bain's formula and my own is that, where I say a preformed disposition is re-excited, he says that a previous experience is "brought up in idea". Mr. Bradley has very severely criticised this mode of expression.¹ With this criticism I largely agree, though its significance is perhaps rather logical than psycho-

¹ *Principles of Logic*, p. 287.

logical. It is not necessary to repeat Mr. Bradley's strictures here ; the objection which I have to raise is of another, and more specially psychological, nature. The ordinary associationist formulas imply a virtual identity of quality between an original experience and what they call its "revival" by association. This assumption is certainly not accurate. Let us denote the original experiences by A and B , and the residual disposition which they leave behind by ab ; if now a , a partial constituent of the complex disposition ab , be re-excited so that the corresponding content of consciousness is approximately identical in quality with A , it by no means follows that the concomitant re-excitement of b is correlated with a content bearing the same degree of resemblance to B ; indeed, under normal conditions, this is never the case. The content which emerges through contiguity may according to circumstances resemble B in varying degrees, and the resemblance is often so inconspicuous that the application of the words "revival" and "reinstatement" is only justifiable by a convention. Thus the sight of an object is said to revive corresponding tactual experiences ; but in fact there is a very great difference indeed between that peculiar modification of visual perception which is alleged to be due to the re-excitement of the residua of past tactual experiences, and these experiences themselves. When we say that a thing looks "hard," or "smooth," or "cold," the presentation of "hardness," "smoothness," and "coldness," as contents of visual perception, differs widely from the experiences which arise in actual contact with the object. Perhaps the main reason why this has not been sufficiently recognised by many writers on association, is that the qualitatively different experiences have an identical objective reference or representative value. We shall treat a little later on of variations in the re-excitement of b which arise from variations in the re-excitement of a . As regards terminology, it will be convenient sometimes to speak of the

“revival” and “reproduction” of presentations, using such phrases as conventional abbreviations, where it would be cumbersome to speak of the re-excitement of dispositions corresponding to the presentations.

Finally, the use of the word “idea” in Professor Bain’s formula is apt to create confusion. It gives rise to difficulties which may perhaps be avoided by a more general statement of the law of contiguity. There is, as we shall see, good reason for holding that the existence of ideas presupposes the existence of perceptions. But the thorough-going associationists regard perceptions as complex products of combination by contiguity. If, then, ideas are subsequent to perceptions, it is putting the cart before the horse to explain the formation of percepts by association of ideas. I have therefore thought it better, in this provisional and problematic statement of the principle of contiguity, so to extend its scope as to make it possibly co-extensive with the whole range of mental life. It is here regarded as a law of sentience, and to some extent even of purely physiological accommodation. A train of ideas, on the other hand, is a complex development of noetic consciousness.

§ 7. “THE LAW OF SIMILARITY.”

It is customary to place by the side of the law of Contiguity another which is called the law of Similarity. Dr. Bain’s formula is as follows: “*Present Actions, Sensations, Thoughts, or Emotions tend to revive their like among previous Impressions, or States*”.¹ The essential import of this principle is well exhibited by his account of its relation to that of contiguity. “When the cohesive link between any two contiguous actions or images is confirmed by a new occurrence or repetition, obviously the present impression must revive the sum total of the past impressions, or reinstate the whole mental

¹ *The Senses and the Intellect*, 4th edition, p. 486.

condition left on the occasion immediately preceding. Thus, if I am disciplining myself in the act of drawing a round figure with my hand, any one present effort must recall the state of the muscular and nervous action, or the precise bent acquired at the end of the previous effort. . . . But this reinstatement of a former condition by a present act of the same kind, is really and truly a case of the operation of the reproductive principle of similarity, or of like recalling like; and we here plainly see, that, without such recall, the adhesion of contiguous things would be impossible.”¹ The implication which underlies this view is that a given presentation *A* is always in the first instance an isolated and mechanically separate element, devoid of preformed association; it has no contiguous adhesions of its own; if therefore it is to re-excite pre-existing dispositions by contiguity, it can only do so by a circuitous process. It must first evoke another presentation, *A'*, numerically distinct from it, but substantially identical with it in quality. The reproduction by contiguity is therefore in strictness the work of *A'* and not of *A* at all. Now one general difficulty which I find in this view is that it involves a mode of interaction opposed to all analogy. In no other case do we find that two distinct elements act upon each other merely because they resemble each other. Such a conception is unknown to science. We find a parallel to it only in the superstitions of magic, such as the belief that the melting of a waxen image will produce the decline and death of the person it resembles. In the next place, the introduction of *A'* seems to be superfluous, when we consider the general principle of mental growth as dependent on retentiveness. New additions to the content of the mind arise as modifications or developments of a pre-existing psycho-physical formation, not as external accretions; *a fortiori*, then, we should expect the reinstatement in consciousness of preacquired contents to coin-

¹ *Op. cit.*, p. 487.

cide with the re-excitement of a residual disposition due to a previous experience of the same kind. But the most important point is the total absence of evidence for the existence of *A'*. No one pretends in any case to have observed it or distinguished it from *A*. This is shown by Dr. Bain's own procedure. He discusses at great length the working of the principle of contiguity without any reference to that of similarity, and without in any way suggesting to the mind of his reader that any such reference is required. We may therefore conclude that the attraction of similars is not an immediate and necessary corollary of association by contiguity. If we are to introduce the link *A'* into the process, we must have strong positive grounds of another kind to justify us in so doing.¹

Such positive grounds are, according to Dr. Bain, to be found in those cases in which the resemblance is only partial. "When we pass from perfect to imperfect or partial identity, we are more readily made aware of the existence of this link of attraction between similars, for we find that sometimes the restoration does not take place; cases occur where we fail to be struck with a similitude—the spark does not pass between the new currents and the old dormant ones."² Two classes of incidents are adduced, which must be carefully distinguished. The first involves simply the immediate identification or classification of an object. The second presupposes the existence of ideas as distinguished from percepts; it involves the transition from the perception or idea of one particular object to the idea of another partially similar particular object. We shall deal first with the second group of cases. A good example is supplied by the resemblance of a portrait to the

¹ A further objection which seems to me of great importance will be brought forward when we come to treat of *mental constructiveness* in chap. vi.

² *Op. cit.*, p. 489.

person it portrays. "If . . . I see a man on the street, and if I have formerly seen a portrait of that man, it is a question whether the living reality shall recall the portrait: the doubt hangs not upon the contiguity or coherence of the parts and surroundings of the picture, if it could be recovered, but upon the chance of its being recovered."¹ Dr. Bain here, curiously enough, seems to think that the work of contiguity consists merely in reviving "the parts and surroundings of the picture," and that similarity alone suffices for the reinstatement of the idea of the picture itself. It scarcely needs to be pointed out that contiguity must be responsible for all those characters of the picture which distinguish it from the apparition of the real person. On Dr. Bain's view the function of the attraction of similars is to effect a transition purely from like to like. When this is clearly realised, the part supposed to be played by the attraction of similars appears superfluous, and unwarranted either by direct evidence or by general considerations. There is no reason why the likeness, so far as it extends, should not be regarded as identity, at least as far as it affects psychological process. The uncertainty of revival will then attach solely to the reinstatement of differentiating characters. This explanation involves no difficulties, and explains the facts at least as fully as Dr. Bain's. The conditions which may obstruct revival are too manifold to enumerate here. The points of difference in the given presentation preoccupy consciousness, and have preformed associations of their own. The points of identity can only reproduce their contiguous associates by partially or wholly displacing the setting in which they are imbedded in the given presentation, and by overcoming the reproductive tendencies which attach to this presentation as a whole and to its specific constituents. In order that such obstructions may be overcome, the points of identity must have peculiar interest or impressiveness, or their

¹ *Op. cit.*, p. 488.

performed associations must in some other way be peculiarly favoured, *e.g.*, by frequent repetition, or by the general direction of mental activity at the moment. Again, a great deal depends on the excitability of the disposition which is to be stimulated afresh. Such conditions as these are amply sufficient to account for the uncertainty of recall. On the other hand, it does not appear that Dr. Bain's explanation is adequate. Why should there be any difficulty in the proposed transition from like to like? It in nowise interferes with pre-existing combinations, or with other reproductive tendencies. Such interference could only arise in so far as the revived points of likeness tend to reinstate their contiguous associates. In other words, it would emerge precisely where Dr. Bain assumes that it would not emerge, and precisely where it ought to emerge according to our view. It would seem, therefore, that the attraction of similars is, in such instances, nothing but a baseless and useless figment. Dr. Bain urges two special arguments in favour of his own view. The first is based on the "burst of excitement"¹ accompanying the apprehension of previously unnoted agreement between objects in other respects very dissimilar. So far as this point is relevant at all, it seems to make against Dr. Bain rather than for him. There is certainly a sense of heightened power when we come to see objects under the same point of view, which we have previously apprehended in detachment from each other, and when this feeling comes upon us suddenly it takes the form of a "burst of excitement". But how is it that the perception of a previously unnoted agreement can have this effect? How is it that what was previously a plurality of separate acts of apprehension becomes a single act—the contemplation of diverse objects under a single point of view? To account for this, and for the feeling of increased ease and power which accompanies it, we must suppose that in so far as the separate

¹ "Association Controversies," *Mind*, O.S., vol. xii., p. 166.

objects are seen to agree they are apprehended by the same mental activity; we must suppose that it is difference only, and not likeness, which disperses attention. The second experience brought in evidence by Dr. Bain is that of "recognition . . . without the power to recall".¹ This occurs whenever, on seeing or hearing something, we are haunted by a dim reminiscence of having seen or heard something like it before, without being able to discover what that something is. Dr. Bain regards this occurrence as "the extreme instance of similarity bereft of the aid of contiguity".² In other words, he thinks that in cases of this sort the process of recall stops short at the second step—that of recall of like by like, of A' by A , which, being thus isolated from the third step, is shown to be distinct from it. An obvious and sufficient reply to this contention is that essentially the same experience occurs in instances in which the principle of contiguity alone is operative. In the unsuccessful attempt to recall a name, we know that we are looking for a determinate something, though we cannot tell what that something is. Association by contiguity is so far operative as to produce a feeling of tendency, but not so far as to produce actual reinstatement. The features of this experience differ in no essential point from that in which the sight of a person vaguely reminds us of some one else, without our being able to determine who it is. If contiguity suffices in the one case, it suffices in the other also.

The second group of instances brought forward in illustration of the alleged principle of similarity comprehends all immediate recognition or classification. All perception seems to involve some kind or degree of recognition. This immediate identification, which belongs to the very essence of perception, is loosely clumped together by Dr. Bain and others with that reinstatement of the apprehension of one particular object by

¹ "Association Controversies," *Mind*, O.S., vol. xii., p. 166.

² *Ibid.*

the apprehension of another resembling it which we have just been considering. But it is obvious, as soon as the question is raised, that there is a wide difference between the two processes. The immediate recognition which constitutes the apprehension of *A* is one thing, the passage of attention from *A* to a similar and co-ordinate *a* is quite another. I see a candle before me and know it for what it is ; this I may do without calling to mind other candles which I have seen in the past. Nor can it be said that there is any special tendency to the recall of similar objects, increasing with the distinctness and persistency of the identification. All depends on the direction of mental activity at the moment. I may follow the demonstration of a proposition of Euclid, having before me the figure of a triangle which I clearly and persistently identify as such ; but throughout the process there need be no recall of other particular triangles, or any appreciable tendency to recall them. So far, then, as the attraction of similars can be supposed to come into play here, its operation must be regarded as "bereft of the aid of contiguity". It would therefore seem that here, if anywhere, we find the simple reproduction of like by like. The general reasons against this interpretation have already been given in discussing the alleged implication of the attraction of similars in contiguous association. We have here to add a further objection appropriate to the special case of identification. If the condition of recognition depended purely on the revival of like by like, then it ought to take place wherever the attraction of similars comes into effective operation, with or without the aid of contiguity. But this certainly does not hold good. In automatic action, visual and other sensations call up motor tendencies which have been associated with them in the past. Now, on Dr. Bain's view they must, in order to effect this, reproduce in the first instance the residua of previous similar experiences. How is it that the sensations

remain outside the sphere of noetic consciousness? how is it that they are not perceptions? If there is attraction of similars, why is there no identification? A good example is afforded by a train of words, which serves to call up a train of corresponding thoughts, without the words themselves being distinguished or identified, or in any way attended to. Another striking illustration is afforded by the experience to which I have referred before. In walking through the street, a name occurs to my mind, without any discernible connection with the previous flow of ideas. I turn round, and find the name printed on a shop-front; the sight of the letters must, according to Dr. Bain, have revived previous similar experiences; otherwise, the printed name could not have called up in my mind the sound of the name. Why, then, did I fail, in the first instance, to identify the printed characters? The truth is, that identification, as involved in perception, is not adequately explicable by association at all. We here content ourselves with pointing out the special difficulties of the view which makes it to depend on the attraction of similars. We shall presently have to recur to this topic under the head of Noetic Synthesis.

§ 8. CONFLICT AND COALESCENCE.

The conception of *conflict* is a very wide one, covering facts belonging both to the most primitive and to the most advanced phases of conscious life. It comprehends all kinds of intellectual hesitation, and it is the psychological counterpart of logical contradiction. Wherever there is any kind of felt inconsistency, there is a psychical conflict. It arises whenever a conscious process tends to take a plurality of incompatible directions. We may adduce as a typical instance of conflict in one of its higher phases the mental attitude of a man who, in pursuing a journey on foot, comes to cross-roads and

cannot decide which is the right one to take. This is a case of the conflict involved in mere doubt or suspense ; that involved in logical contradiction may be illustrated by the mental attitude of a person who hears from two equally credible witnesses opposite statements concerning the same fact. The full discussion of the process of conflict, as it appears in the comparatively advanced stage of intellectual progress which is presupposed in these illustrations, can only be taken up with advantage when we come to treat of apperception. At present, we shall confine ourselves to its most primitive phases. I refer to those which emerge when a preformed disposition, either transmitted by heredity or fixed by habit, comes in collision with a new experience obtruded on it by a novel combination of impressions. The bird which sees its own reflection in a mirror and, on dashing forward to meet it, encounters the hard, smooth surface, instead of its fellow-bird, feels a conflict of this kind. The case is similar with a man who picks up an apparently very heavy dumb-bell, which is in reality hollow and made of wood. In these instances, elementary as they are, the conflict is between a sequence of *percepts* as determined by preformed dispositions, and a sequence determined by external conditions. But there is evidence that the felt antagonism between psycho-physical predisposition and external stimulus may take place within the sphere of anoetic consciousness. This is shown by the fact that the shock of novelty, so far from necessarily presupposing attention, is often its antecedent condition. In walking along a familiar road, I do not usually take notice of the well-known objects which I pass ; but if any change has been made, so that the habitual sequence of impressions is disturbed, the novelty is very likely to arouse attention, where it would otherwise have been dormant. The change in the impressional sequence is the primary disturbance which initiates the more complex excitation on which attention depends.

The consequences of conflict vary enormously, according to the level of mental development at which it takes place. It constitutes a disturbance of psycho-physical equilibrium, and so initiates a *vital series* by which a stable condition is again restored. But the form which this vital series takes depends entirely on the intellectual development of the individual, general and special. Perhaps the lowest grade is that of the singed moth, which keeps hovering over the candle-flame in spite of its past hurts. Here the vital series seems to issue in a simple reinstatement of the psycho-physical condition which preceded the disturbing experience. Hence the action is repeated again and again in the same way. In higher stages of evolution the result is different. The vital series tends to terminate, not in a simple restitution of the previous condition, but in a modified disposition, which gives rise to a modified reaction when the same conditions recur. The vital series in this case tends towards such a readjustment of psycho-physical conditions as will prevent a recurrence of conflict. I say that it "tends towards" such a condition, because it often happens that this result is only partially attained, or even that the readjustments turn out to be wholly inadequate. Mr. Lloyd Morgan supplies an example in which the readjustment was curiously gradual and mechanical in its nature. "I may here mention a somewhat amusing case of association in two of my ducklings. I had placed before them regularly at the same time each morning a black tray, on which was a shallow tin containing water; they ran to it, drinking eagerly, sitting in the tin and washing. On the sixth morning I gave them at the usual time the black tray and the shallow tin, but without the water. They ran to it, scooped with their bills along the bottom of the empty tin, and made all the motions of the beak characteristic of drinking. They sat in the empty tin, wagging their little tails and ducking their heads, throwing wholly imaginary water over their backs

This they continued to do for ten minutes, the action becoming less and less vigorous. Then I gave them water. Next morning I repeated the same experiment. They ran to the tin, squatted in it, and tried to find water to drink, but after three minutes or so went off, but ran to it again when I poured in water. The following morning, after just searching for water in the empty tin, they waddled off.”¹ We may take as a somewhat different instance of this kind of vital series a fact elicited in the course of F. Dahl’s interesting experiments on the psychology of spiders. He introduced into the meshes of a web a common fly besmeared with oil of turpentine. The spider sprang upon its prey, according to its usual habit : but it immediately recoiled. This happened in three repetitions of the experiment. Afterwards the spider could not be induced to renew the attempt. So soon as the fly came within its range of vision, it retreated. Dahl then introduced a fly which had not been besmeared with oil of turpentine. “The spider refused it : after a few hours, however, it again received flies of the same kind. The next day, on being presented with a besmeared fly, it sprang and recoiled as at first, but could not be induced to make a second attempt, even without the oil of turpentine. But again it recovered its confidence after the lapse of a few hours.”² In this instance the vital series did not reach an ultimate termination ; for the spider failed to hit on a way of distinguishing with ease and certainty the medicated from the unmedicated fly. The burnt child, who not only learns to dread the fire, but also to distinguish between a bright object which may be touched without fear of burning, and one which may not, has completed the vital series arising out of the original conflict, and has permanently accommodated itself to its environment. Another elementary mode in which such

¹ *Comparative Psychology*, p. 89.

² “Versuch einer Darstellung der psychischen Vorgänge in den Spinnen” (Artikel ii.), *Vierteljahrsschrift f. wiss. Phil.*, 1886, p. 173.

equilibrium may be attained is by the mere repetition of the novel combination until it has ceased to be novel. This of course can only take place when no practical issue of vital importance is involved. A man who goes out to China and finds the natives wearing white as a sign of mourning, will soon find that the first strangeness of such an inversion of his previous ideas will pass away as he becomes used to it. So a person who has only seen white swans will no doubt be at first taken aback at the sight of black ones; but the feeling will wear off if he continues to see black swans every day.

In all conflict there is involved a process which commences as it has commenced in the past, and then encounters conditions which interfere with its habitual continuation. Thus the antagonism is, strictly speaking, between its tendency to continue itself in one way as determined by a preformed disposition, and the actual continuance which is forced upon it by other conditions. Thus conflict cannot arise between two disconnected processes, but only between two possible continuations of the same process.

It must therefore be carefully distinguished from mere competition, in which two disparate processes tend to arrest and displace each other, simply because they cannot both occupy consciousness at once. The typical instance of this is what we call *distraction of mind*, in which attention is solicited simultaneously by a plurality of objects, so disconnected in nature that they cannot be attended to together. Competition presupposes the disconnection of the competing tendencies; conflict presupposes their connection.

It may happen that under conditions which would otherwise give rise to conflict, no appreciable conflict actually ensues, simply because either the old or the new combination is relatively so powerful as to overbear the tendency opposed to it without a struggle. Suppose the components of the one combination are $a\ b\ c$, and of the other $a\ b\ x$; c may be so

favoured from the outset that it simply displaces x without any feeling of discrepancy arising, and without any attention to the difference. This process I call *overlapping*, or *coalescence*. It may take place between a new percept and the predisposition left by previous percepts; when this happens, it may also extend to the corresponding memory-image, inasmuch as the modified perception gives rise to a correspondingly modified idea. It may also take place between mental images, apart from their interaction with percepts. In the following series of illustrations it will be easy for the reader to distinguish these cases, though it has not been found convenient to arrange them strictly according to this classification.

The repeated presentation of some particular person or thing under varying conditions and modifications tends to produce a resultant image, vague and fluctuating in the variable characters but comparatively distinct in the points of agreement. In this way arises what has been called *generic* imagery. The process of its production has been often compared to what takes place in the formation of compound photographs. The composite mental image may sometimes, like the composite photograph, assume a definite and peculiar character. If we make a general effort to call up the image of a face, without fixing on any particular face previously known to us, what actually emerges may be the presentation of a face such as we have never seen or imagined before.

The most striking examples of coalescence, however, are those in which the overlapping is one-sided. One image is absorbed by another which prevails over it by sheer superiority of strength. Coalescence of this kind is for the most part confusion, producing falsification of memory and of perception. Every one knows how our memory of what has happened becomes modified in accordance with our desires, our dramatic bias, our views of what *ought* to have taken place,

and so forth. In children and in adults of a lively but inaccurate turn of mind this tendency is especially marked. But even the most sober and exact persons exhibit it in some degree. The falsification of memory becomes greater in proportion to the lapse of time. A narrative of an event written down by an eye-witness immediately after its occurrence will be more exact than one written a day or two later. Nevertheless, the subjective assurance of the writer and the definiteness with which he imagines and describes the past scene may be as great in the one case as in the other. Abundant illustration of these fallacies of memory may be found in a paper by Mr. R. Hodgson,¹ in which the accounts of a slate-writing performance, given by different persons under different conditions, are carefully collated and compared.

The gradual transformation undergone by a story as it passes from one person to another is in part at least to be accounted for by coalescence. Each hearer more or less unconsciously modifies the story according to his preconceived ideas and transmits it to his neighbour with this added modification.

It is said that there are men who come to credit their own lies by frequent repetition of them. This is probably untrue of *liars* in the strict sense, *i.e.*, of persons who deliberately concoct a fiction in order to attain some definite end. But there can be no doubt that it frequently happens in the case of those romancers who give the rein to the imagination because they enjoy the licence, being merely heedless of accuracy, not calculating inventors of what is false. The deliberate liar is not likely to deceive himself, because he is too keenly aware that he is himself fabricating the story. But the romancer's whole interest is in the tale itself, not in any ulterior end of his own. If it be a tale of his own exploits,

¹ *Proceedings of the Psychical Society* for May, 1887, p. 381.

the "idea of himself fabricating the story is hurried over rapidly: the idea of himself as actor in the story is dwelt upon with great emphasis. In continued repetitions, the first circumstance being attended to as little as possible, the association of it grows weaker and weaker, the other circumstance engrossing the attention, the association of it grows stronger and stronger; till the weaker is at last wholly overpowered by the stronger and ceases to have any effect." ¹

In most instances the romance gathers round a nucleus of fact which is transfigured by it. What actually occurred suggests what might have occurred. What might have occurred is much more impressive and interesting than what actually occurred. Hence one-sided overlapping takes place, and the fact becomes merged in the fancy, and moulded according to the fancy.

It is well known that we fail to notice gradual changes in persons with whom we have familiar and constant intercourse. This seems to be due to present perception overlapping preformed disposition. The difference produced by a short interval of time is far too small to prevent coalescence between the predisposition and the present percept. The perceptual modification extends itself to the memory-image, and in doing so it overlaps the image, so that the change is not detected. Thus the sight of an old portrait or the remarks of a stranger, by bringing into juxtaposition the remote past and the immediate present, may cause a shock of surprise at the alterations wrought by time, which have thus been masked by successive overlappings. Coalescence also seems to supply at least a partial explanation of those well-known cases in which we are haunted by a general sense of having done something or experienced something before which in point of fact is new to us. We have had past experiences which in some points agree with the present. The points of disagreement have

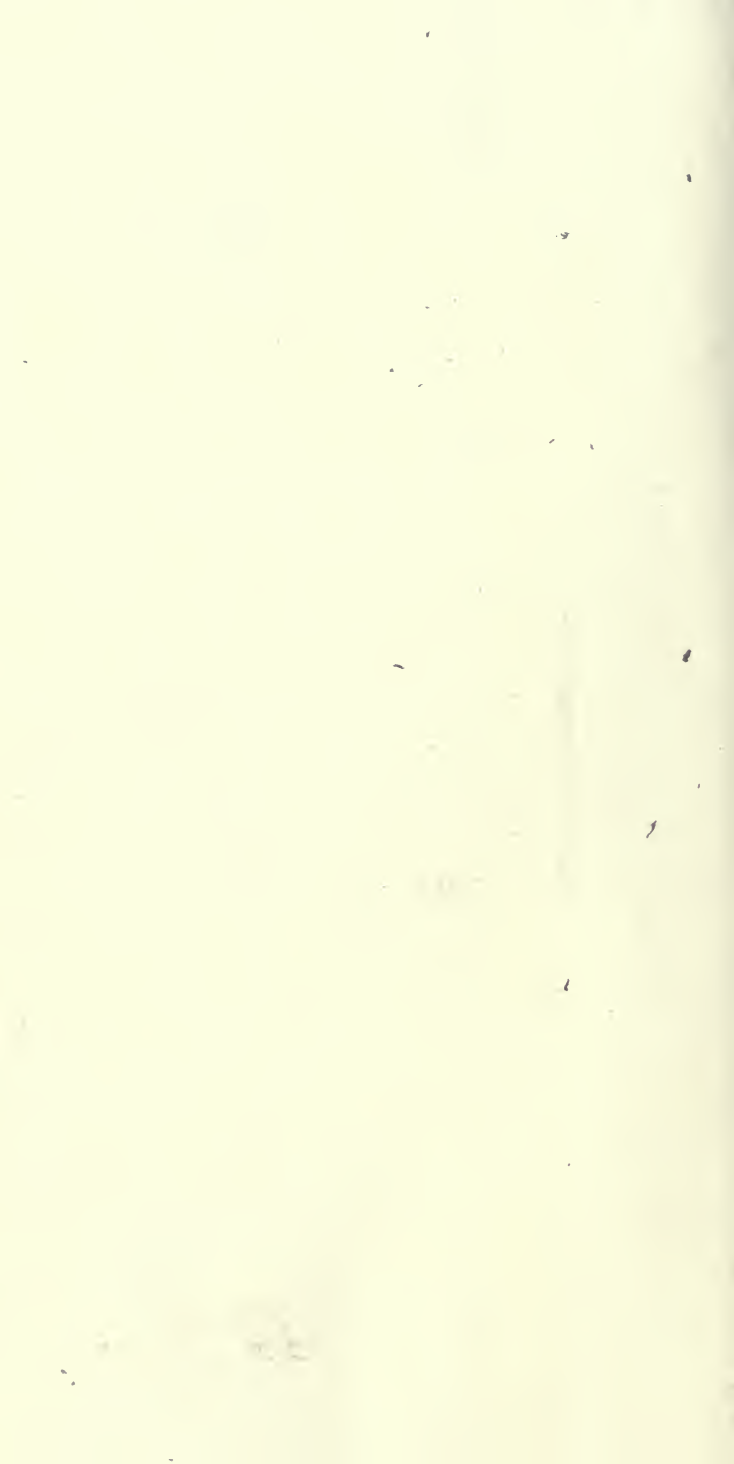
¹ James Mill, *Analysis*, vol. i., p. 334.

been obscured by the lapse of time, or otherwise, so that coalescence takes place in spite of them. The reminiscence is vague, and because of its vagueness the bygone incident is usually referred to a past time which is indefinitely remote.

Falsification of perception through the blending of an image with a more or less divergent percept is a very common occurrence. We are apt to see what we expect to see. If I am anxiously awaiting the coming of a particular person, I am likely to fancy that I see him whenever any one approaches who resembles him even in a slight degree. We fail to notice misprints in a book because the general disposition to see the words written in a certain way overlaps the presentation of the words as they actually are written. Onomatopoetic expressions modify the impression made upon us by the natural sounds to which they correspond. The barking of a dog only faintly resembles "*bow-wow*," and the ringing of a bell is very imperfectly imitated by "*ding-dong*". But the similarity often appears to be a very close one to children, and to most persons who have not critically compared the sounds. "When we look with the pseudoscope at the *interior* of a mask . . . the mental representation of the image in relief is at once called up. But when we look pseudoscopically at the . . . *outside* of a mask, it is only after a lengthened gaze that such 'conversion of relief' occurs. In the case of the *living human face*, however, it seems that no protraction of the pseudoscopic gaze is sufficient to bring about a 'conversion of relief'."¹ Other instances of coalescence modifying perception might be adduced in endless number. "Pictures in the fire," human shapes in clouds, the illusions produced by moonlight and by partial darkness, are all due to the overlapping of relatively vague and indeterminate percepts by more clear and definite images.

¹ Carpenter's *Mental Physiology*, 5th edition, p. 191.





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